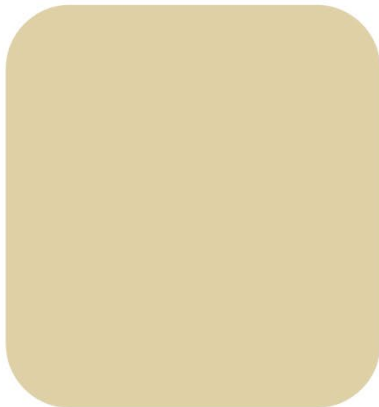




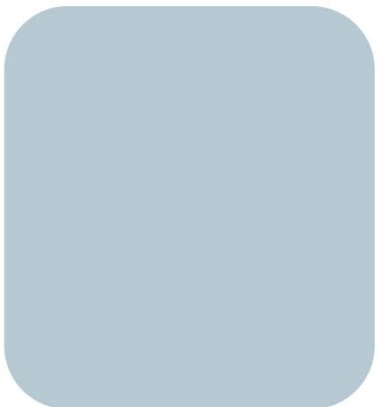
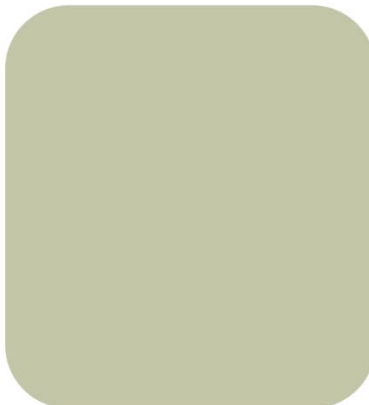
Instituto del Progreso Latino's Carreras en Salud Program

Six-Year Impact Report



OPRE Report 2022-47

January 2022



PACE
Pathways for Advancing
Careers and Education

Instituto del Progreso Latino's Carreras en Salud Program: Six-Year Impact Report

A Pathways for Advancing Careers and Education (PACE) / Career Pathways Long-Term Outcomes Study Publication

OPRE Report

January 2022

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Overview

This report documents the impacts six years after random assignment for the Carreras en Salud program, operated by Instituto del Progreso Latino in Chicago, Illinois. Carreras en Salud aims to help Latino adults with low income access and complete occupational training in nursing that can lead to increased employment and higher earnings. It is one of nine programs using elements of a career pathways framework that are being evaluated as part of the **Pathways for Advancing Careers and Education (PACE)** project, sponsored by the Administration for Children and Families (ACF) within the U.S. Department of Health and Human Services.

Carreras en Salud consists of five elements:

- 1) a structured healthcare training pathway, starting at low skills levels;
- 2) contextualized and accelerated basic skills and English as a Second Language (ESL) instruction;
- 3) academic advising and non-academic supports;
- 4) financial assistance; and
- 5) employment services.

The evaluation of Carreras en Salud used a rigorous experimental design. This report describes Carreras's long-term, six-year impacts on educational attainment, earnings and employment, and other life outcomes. It extends the analyses of program effects measured 18 months and three years after randomization.

Research Questions

Six years after random assignment, what were the effects of Carreras en Salud on

- receipt of long-term college credentials, particularly the LPN?
- earnings?
- employment, job quality, and career progress?
- family economic well-being and child outcomes?

Purpose

Carreras aims to provide training to Latinos with low income with a seven-course pathway that starts with Career English as a Second Language (ESL) and concludes with Licensed Practical Nurse (LPN). It incorporates a range of academic and non-academic services and supports to help participants complete their first course and advance to subsequent ones. This research evaluated whether Carreras was successful in providing training to the target population and whether the program's efforts led to impacts on credentials, earnings, healthcare employment, and other life outcomes.

Key Findings

Analyses in this report indicate that after six years, Carreras en Salud:

- **Increased by 4 percentage points receipt of college credentials requiring at least one year of full-time college, the confirmatory outcome in the education domain for the six-year impact study.** Seventeen (17) percent of the treatment group received such a credential, compared to 13 percent of the control group. LPN is the Carreras course of study that fits this category.
- **Had no detectable impact on average quarterly earnings in follow-up quarters 23 and 24, the confirmatory outcome in the earnings and employment domain for the six-year impact study.** The average quarterly earnings for treatment group members were \$6,343, compared to \$6,053 for the control group.
- **Had a 6 percentage point impact on the percent receiving quarterly earnings averaging \$6,825 or more across quarters 23 and 24.** Forty-nine percent of the treatment group earned this threshold compared to 43 percent of the control group. Further analysis found that the impact occurred in quarter 24 only and disappeared the following quarter.
- **Had a 6 percentage point impact on employment in the healthcare field.** Thirty-two (32) percent of treatment group members reported working in the healthcare field at the time of the follow-up survey, compared to 26 percent of control group members. However, the program had no detectable impact on other measures of employment outcomes or career progress, including the proportion working full-time, the percentage working in a job that offered five types of benefits, or self-reported access to a career network.
- **Had no detectable impact on measures of financial wellbeing.** The evaluation found no impact on ability to handle an emergency of \$400 or more or financial distress. Nor did Carreras have a detectable impact on receipt of means-tested public benefits.

Methods

To assess the effectiveness of Carreras, the PACE project used an experimental design in which program applicants were assigned at random to a treatment group that could access the program or to a control group that could not, then compared their outcomes. From November 2011 to September 2014, Carreras staff randomly assigned 800 program applicants (402 treatment, 398 control). The six-year impact study used data from a follow-up survey conducted six years after randomization, earnings records from the National Directory of New Hires, and college enrollment data from the National Student Clearinghouse.

Executive Summary

Established in 2005 by Instituto del Progreso Latino, the **Carreras en Salud** (“Careers in Health”) program is a seven-step nursing pathway that prepares Latino adults with low income for employment in the healthcare sector. Citing the need for healthcare workers who are bilingual in the Chicago area, program planners embedded two credentials into the pathway: Certified Nursing Assistant (CNA) and Licensed Practical Nurse (LPN). In-house basic skills courses contextualized with healthcare content prepare participants for the two college-level programs, with the ultimate goal of helping participants continue the pathway and earn an LPN credential, and in doing so, greatly increase their earnings.

Abt Associates is evaluating Carreras as part of the **Pathways for Advancing Careers and Education (PACE)** project, a multi-site experimental study of nine programs using elements of the career pathways approach. The evaluation is funded by the Administration for Children and Families within the U.S. Department of Health and Human Services.

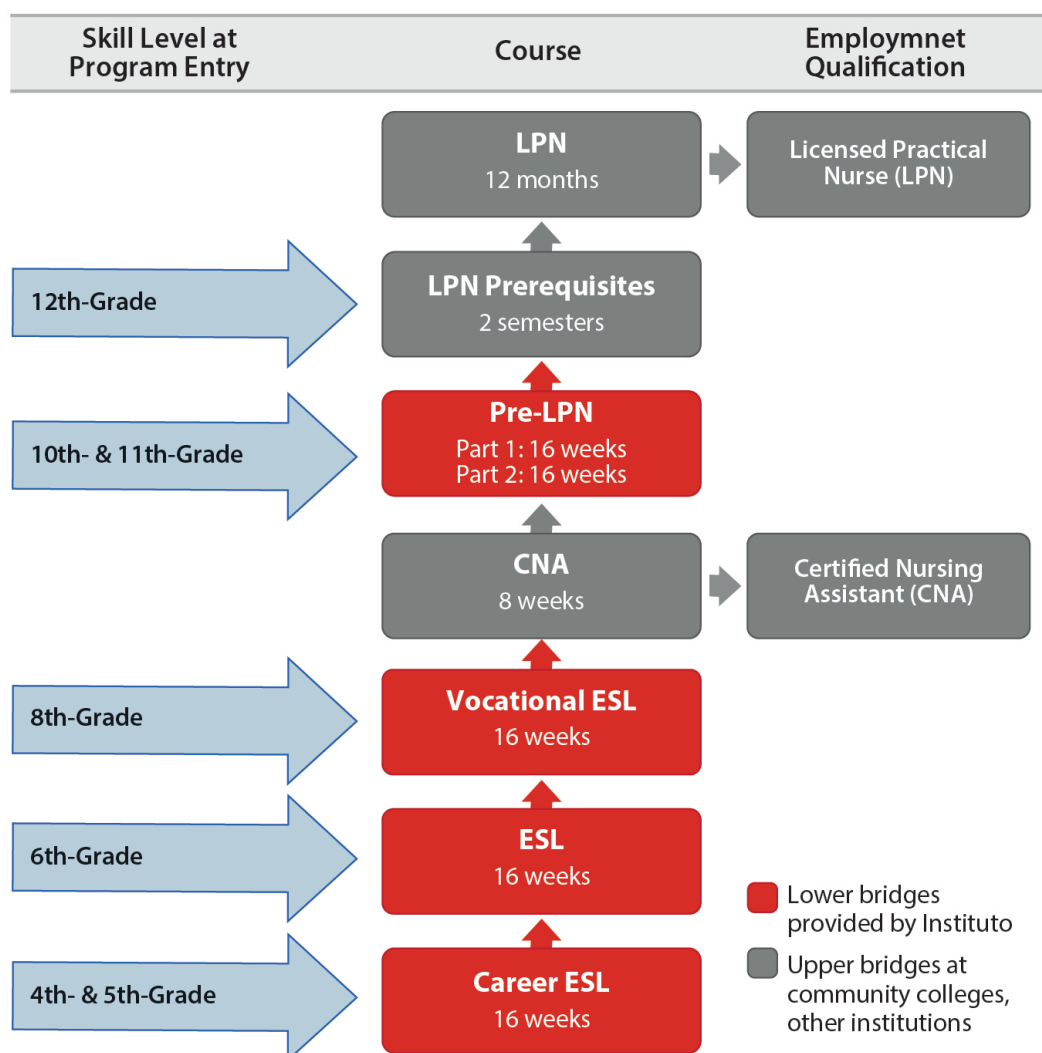
This report describes Carreras’s six-year impacts on educational attainment, earnings and employment, and other life outcomes. It extends the analyses of program effects measured 18 months and three years after random assignment.

Program Overview

Carreras’s nursing pathway accommodates participants with skill levels ranging from fourth grade to 12th grade (Exhibit ES-1). The “lower bridge” steps (red boxes) occur at Instituto and prepare participants for the three college-level “upper bridges” (grey boxes), culminating in the LPN program. The lower bridge steps provide *basic skills instruction within the context of healthcare occupations* using healthcare vocabulary. Participants receive *one-on-one assistance to address barriers* to students’ enrollment and persistence, including provision of childcare, assistance with transportation and accessing public benefit programs, and *academic advising*. The *lower bridges are free* to participants.

Upper bridge steps occur at City Colleges of Chicago campuses. Carreras provides academic advising to upper bridge participants, and helps them apply for financial aid, such as Pell grants, to cover college tuition. Two upper bridge steps result in a credential; the third prepares students for the LPN step.

Carreras provides *employment services* at Instituto, such as one-on-one job search assistance and a one-week job readiness workshop. If needed, Carreras staff also help participants find work while they are in the program.

Exhibit ES-1: Carreras en Salud Nursing Pathway**Evaluation Design**

The research team used an experimental research design to estimate the impact of access to Carreras on participants' postsecondary education and training, earnings and employment, and other life outcomes. Between November 2011 and September 2014, staff randomly assigned 800 applicants to the program to a treatment group that could access Carreras services (n=402) or a control group that could not access Carreras but could receive other services in the community (n= 398).¹ The evaluation captures the impacts of the program overall rather than the separate contributions of its components.

The PACE project established three categories of hypotheses: confirmatory, secondary, and exploratory. *Confirmatory hypotheses* focus on two outcomes—one each in the education and

¹ This design ensures that estimated effects can be attributed to access to the program and not to unmeasured differences in characteristics or external circumstances between study participants with access (treatment group) and without access (control group) to the program.

employment domains—that indicate whether Carreras is producing the results expected at six years. *Secondary hypotheses* address an additional, limited set of indicators in the earnings and financial well-being domains, where the team expects program impacts in a specific direction. *Exploratory hypotheses* address a larger number of possible impacts in which impacts could be in either direction.²

Data sources for this report are: two baseline surveys administered at the time of study enrollment; 18-month, three-year, and six-year study participant follow-up surveys; earnings and employment data from the National Directory of New Hires; and school enrollment data from the National Student Clearinghouse. This report also references Instituto program records used in previous reports to calculate treatment group participation rates.

Key Findings

An earlier report documented that three years after random assignment, most treatment group members participated in one step (93 percent) and about half of them participated in a second step (44 percent). Fewer (15 percent) participated in at least three steps (Gardiner, Martinson, and Dastrup 2021). In terms of three-year education impacts, Carreras had a statistically significant 3 percentage point impact on receipt of a college credential requiring at least one year of college study to earn, which corresponds to receipt of an LPN credential (the confirmatory outcome). Twelve percent of the treatment group earned such a credential, compared to 9 percent of the control group. Carreras had larger impacts on several secondary outcomes: receipt of any college credential (inclusive of CNAs) (12 percentage points), receipt of a healthcare credential from any type of school (13 percentage points), and receipt of an exam-based certification or license (23 percentage points).

This impact on credentials did not translate into impacts on employment and earnings outcomes after three years. Specifically, Carreras had no detectable impact on average quarterly earnings in the last two quarters of the follow-up period (quarters 12 and 13), the confirmatory outcome in the employment domain. Nor did Carreras have a detectable impact on employment overall or key indicators of career progress, including earning \$14 per hour or more, and employed in a job requiring at least mid-level skills.

The six-year impact study addressed the following research questions. Relative to the control group, does Carreras have impacts on:

- receipt of long-term college credentials, particularly the LPN?
- earnings?
- employment, job quality, and career progress?
- family economic well-being and child outcomes?

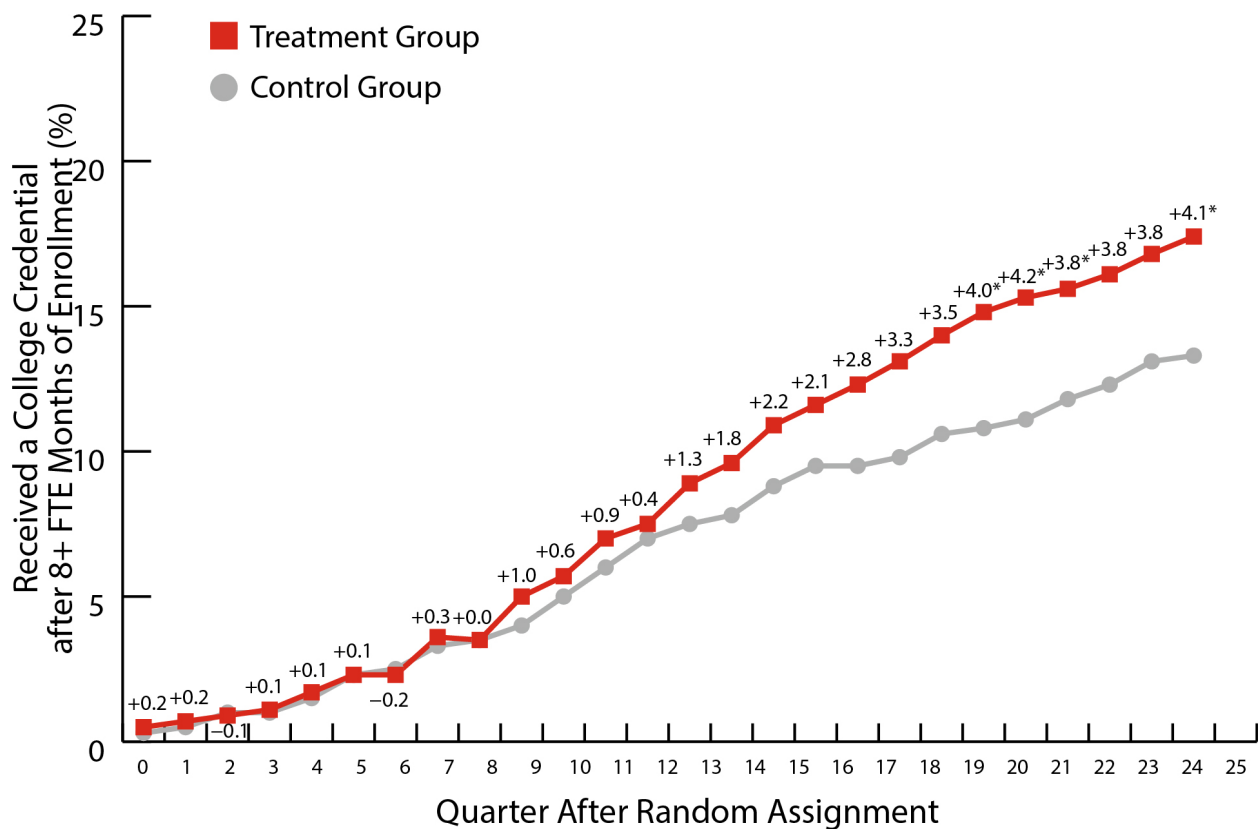
² The research team published the six-year analysis plan for Carreras and other PACE sites on the Open Science Framework website and registered confirmatory and secondary outcomes before the beginning estimation of six-year impacts: <https://osf.io/s97jt/>.

The six-year findings are summarized below.

- ***Carreras produced a 4 percentage point impact on credentials requiring at least a year of full-time college, the confirmatory outcome in the education domain.***

More treatment group members earned a longer-term credential relative to control group members. Seventeen percent of treatment group members, compared to 13 percent of control group members, earned a college credential preceded by eight or more Full-time Equivalent (FTE) months of enrollment by quarter 24, a 4 percentage point impact (Exhibit ES-2). This measure is a proxy for credentials requiring at least a year of full-time college.³

Exhibit ES-2: Percent Ever Receiving a College Credential after 8+ FTE Months of College Enrollment, by Follow-up Quarter



Source: National Student Clearinghouse.

Note: Hypothesis tests are one-sided for confirmatory outcome (received college credential preceded by 8+ FTE months of enrollment by Q24) and two-sided for the percent ever receiving a college credential after 8+ FTE Months of college enrollment for other follow-up quarters. Asterisks indicate statistical significance at the: * 10 percent level.

- ***Carreras' impact on college credentials did not translate into an impact on average earnings.***

The program did not have a detectable impact on quarterly earnings. This was true for the end of the follow-up period, the focus of the confirmatory outcome, as well as all study quarters.

³ The team specified this outcome, which the National Student Clearinghouse does not identify directly.

Exhibit ES-3 (top row) shows average quarterly earnings in the two final quarters of the six-year follow-up period (the confirmatory outcome). Treatment group members earned, on average, \$290 more than control group members during the final two quarters, but the difference is not statistically different from zero.

Exhibit ES-3: Impact on Average Earnings in Specified Follow-Up Periods

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	p-Value
Confirmatory Outcome: Average quarterly earnings in follow-up quarters 23 and 24 (\$)	\$6,343	\$6,053	\$290	\$365	4.8	.214
Average quarterly earnings of \$6,825 or more in quarters 23 and 24 (%)^a	49.2	43.2	+6.0**	3.4	13.8	.041
Average total earnings (\$) in follow-up:						
Year 1 (quarters 0-3)	\$10,465	\$11,515	-\$1,050**	\$507	-9.1	.039
Year 2 (quarters 4-7)	\$14,050	\$14,964	-\$914	\$762	-6.1	.230
Year 3 (quarters 8-11)	\$16,743	\$17,540	-\$797	\$899	-4.5	.376
Year 4 (quarters 12-15)	\$18,455	\$20,332	-\$1,878	\$1,007	-9.2	.969
Year 5 (quarters 16-19)	\$22,026	\$23,169	-\$1,144	\$1,181	-4.9	.833
Year 6 (quarters 20-23)	\$24,935	\$24,087	+\$849	\$1,309	3.5	.259
Years 1-6	\$106,673	\$111,607	-\$4,933	\$4,549	-4.4	.278
Sample size	391	384				

Source: National Directory of New Hires.

Note: Confirmatory and secondary outcomes are **bolded**. Other rows are exploratory. Hypothesis tests are one-sided for confirmatory and secondary outcomes and two-sided for other (exploratory) outcomes. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., $100 * [\text{impact} / \text{control group mean}]$).

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

^a The \$6,825 cut-point identifies earnings consistent with full-time employment (35 hours per week) at a wage level of \$15 per hour throughout the quarter.

The team also analyzed earnings over the entire six-year follow-up period. Carreras had no detectable impact on average total earnings in any of these years (Exhibit ES-3, bottom row). As shown, Carreras had a negative impact on average earnings in the first follow-up year, as expected, because more treatment group members participated in training than did control group members. Thereafter, there is no detectable difference between the groups. The differential between treatment and control groups turns positive in Year 6, but the difference is not statistically different from zero.

Carreras had a small positive impact on the percent receiving earnings averaging \$6,825 or more across the final two quarters of the follow-up period (Exhibit ES-3, middle row). This figure represents full-time employment at a “career-entry wage” level (\$15 per hour). The program had a 6 percentage point impact on average quarterly earnings of \$6,825 or more in quarters 23 and 24. The team assessed impacts separately for quarters 23 and 24, and extended the analysis to quarter 25 to determine if the finding was the start of an earnings trend or a blip in an otherwise consistent story. These analyses point to the latter explanation: the impact occurred in quarter 24 only and disappeared in quarter 25 (not shown).

- ***Carreras did not have a detectable impact on most measures of employment outcomes and career progress.***

The program had a detectable impact on one of three employment outcomes (Exhibit ES-4): Carreras had a 6 percentage point impact on employment in the healthcare field. However, six years after random assignment, only about one-third of treatment group members worked in the healthcare field. The program did not affect full-time employment or employment in a job that offered five types of benefits. Finally, Carreras did not affect access to a career network.

Exhibit ES-4: Employment Outcomes and Career Progress

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error		p-Value
Employment Outcomes					Relative Impact (%)	
Working full-time (35+ hours/week) (%)	55.4	54.2	+1.2	4.4	2.3	.389
Working in the healthcare field (%)	31.9	26.2	+5.7*	3.9	21.7	.073
Working in a job offering 5 types of benefits^a	40.4	40.5	-0.1	4.4	-0.3	.513
Career Progress					Effect Size	
Access to career network^b	3.23	3.12	+0.11	0.17	0.06	.263
Sample size (all survey respondents)	289	247				

Source: PACE six-year follow-up survey.

^a The five benefits offered are health insurance, paid vacation, paid holidays, paid sick days, and retirement or pension benefits.

^b Mean number of affirmative responses for 6 Y/N items

Note: Rows in **bold** identify secondary outcomes. Hypothesis tests are one-sided for secondary outcomes. Statistics under Relative Impact represent the impact as percentage of the control group mean (i.e., $100 * [\text{impact} / \text{control group mean}]$). Effect sizes represent the impact as a percentage of the control group standard deviation. Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

- ***Carreras did not have a detectable impact on any measure of financial-well-being.***

The program did not affect study members' ability to handle an emergency of \$400 or more with cash on hand or financial distress. Similar proportions of treatment group and control group members received means-tested public benefits in the month prior to the survey (not shown). These results are not unexpected given the lack of a detectable impact on participants' earnings.

Possible Explanations for Employment and Earnings Results and Implications for Programs

The six-year impact study found positive impacts on credentials, but almost no impact on earnings and employment. There are several potential explanations for these divergent results.

- ***Carreras's positive impact on receipt of a higher-level college credential was small.***

As noted above, Carreras increased the receipt of a college credential after eight or more months of FTE enrollment – a proxy for receipt of an LPN or similar credential – by four

percentage points. The LPN credential is critical to earnings gains. The average full-time LPN salary in the Chicago area is roughly twice the average full-time CNA salary. Moreover, a full-time CNA earns about as much as workers in jobs that do not require postsecondary education. Although more treatment group members than control group members earned a higher-level credential, the difference was not enough to affect quarterly earnings.

- ***About half of participants do not return for subsequent pathway steps, and those who do generally do not reach the highest step.***

This may explain in part the small impact on the receipt of higher-level college credentials. Forty-four (44) percent of treatment group members participated in a second step. Of treatment group members who engaged in two steps, two thirds enrolled in lower bridge steps or the CNA step. Fifteen (15) percent participated in a third step, most moving beyond the CNA step to the Pre-LPN step or a higher one. Thus, most participants are not reaching the LPN step because they are not returning to complete the previous steps on the pathway.

The six-year impact findings suggest programmatic implications for Carreras, or other multi-step programs for increasing receipt of higher-level credentials and employment in jobs with better earnings.

- *Explore adding more in-program and post-programming advising.* All Carreras participants receive academic advising, but non-academic advising (i.e., case management to identify potential issues that can affect persistence and provide or make referrals to services) is limited to participants in the lower bridge steps. Upper bridge participants might benefit from assistance with non-academic issues that could affect persistence, such as childcare and guidance on how to balance work and school. As well, program staff could explore how to keep in contact with participants who leave the program for work after completing a step, reminding them of the benefits of further training and how Carreras can help them enroll and complete. The launch of Instituto College in 2018, which includes the CNA course and a new to the pathway Associate Degree in Nursing program, incorporates wraparound supports for all students, thus could help address advising challenges.
- *Consider full-time enrollment for Pre-LPN and subsequent steps.* Most participants who reach an upper bridge step enroll in college part-time, possibly because most participants worked while they attended the program. An earlier study of the Carreras steps found that participants who began at the Pre-LPN step and CNA steps took a median 43 months and 46 months, respectively to complete the LPN step (Helmer and Blair, 2011). This is nearly four times as long as the required two semesters if they attend college full-time; however, because most Carreras participants attend part-time, it can take two or more years to complete the prerequisites. Full-time attendance not only shortens the timeline for earning a credential, it also is associated with lower drop-out rates relative to part-time status. Program designers, however, would need to explore supports that could help working participants reduce their work hours or leave the workforce temporarily.

- *Explore offering a wider range of healthcare occupational trainings, including occupations outside of direct patient care.* An LPN credential might not be a good fit for some participants for a variety of reasons, including lacking the time to continue their education, having no interest in direct patient care, and that quickly achieving the reading and English speaking skill level needed to enter the program can be difficult for some of Carreras' English language learners. Other occupations to consider that have higher wages relative to CNAs include medical office (e.g., Records Clerk, Records Technician) or Pharmacy Technician. Relative to LPNs, these programs are shorter and/or require lower basic skill levels.

1. Introduction

This report presents the six-year impacts of **Carreras en Salud** (“Careers in Health”; hereafter, simply Carreras). Carreras is a Chicago-based program designed to (1) create a pathway to well-paying jobs in healthcare for Latino adults with low income and few formal education credentials and (2) address the need for a more diverse healthcare workforce. Launched in 2005, Carreras has a well-defined career ladder linked to specific jobs in the labor market and includes clear articulation between steps.⁴ This report describes the program’s six-year impacts on education, employment, and earnings.

Many colleges and other training providers target healthcare as a promising sector for training adults with low income. The Bureau of Labor Statistics projects healthcare will be the fastest growing sector of the economy over the next decade.⁵ The healthcare sector also offers a wide range of employment opportunities, from occupations requiring only short-term training credentials to those requiring graduate or professional degrees. Healthcare offers potential pathways for career growth in different occupational areas, such as direct patient care, medical office, laboratory, occupational health, and more. Students can start at a pathway step that corresponds to their skill level and, over time, continue to successively higher-level trainings, credentials, and employment opportunities.

Because a more culturally competent and multilingual healthcare workforce is necessary to meet the needs of an increasingly diverse patient population (Centers for Medicare & Medicaid Services 2017; Divi et al. 2007; The Joint Commission 2014), healthcare also could be a particularly promising occupation for individuals who are bilingual. Nevertheless, Carreras program designers found that a small share of Licensed Practical Nurse (LPN) students at Chicago City Colleges were Latino, despite the need in Chicago and surrounding areas for more nursing staff who are bilingual English/Spanish speakers.

Carreras’s multi-step pathway and advising aim to increase access to and completion of nursing credentials for Latino students. The in-house sequence of basic skills steps contextualized with healthcare content aim to help participants attain the skill level needed to enroll in postsecondary education programs at City Colleges of Chicago. Advising helps students manage college enrollment and financial aid processes.

1.1 The Pathways for Advancing Careers and Education Project

Carreras is one of nine training programs for adults with low income being evaluated as part of the **Pathways for Advancing Careers and Education (PACE)** project (see box for the other

⁴ ACF’s Health Profession Opportunity Grants (HPOG) Program provides healthcare-related training to low-income adults. A first round of grants was awarded in 2010 (HPOG 1.0). Instituto del Progreso Latino was a sub-grantee to the Will County Workforce Investment Board, and thus was partially funded by HPOG 1.0. For more: <https://www.acf.hhs.gov/ofa/programs/hpog>.

⁵ The U.S. Bureau of Labor Statistics (2021) projects that healthcare occupations will grow 15 percent from 2019 to 2029 and add more jobs than any of the other occupational groups, largely because of the aging U.S. population.

eight programs). The Administration for Children and Families (ACF) within the U.S. Department of Health and Human Services sponsors PACE. The nine programs variously incorporate elements from a career pathways framework that PACE uses to organize and understand findings.⁶ Because the operating organizations and their program models, target populations, and focal occupations and industries vary, PACE evaluates and reports findings for each of the nine programs individually.

The basic assumption underlying the **career pathways framework** is that postsecondary education and training should be organized as a series of manageable steps leading to successively higher credentials and employment opportunities in growth occupations (Fein 2012). The framework identifies services that can help to make these steps manageable and support career advancement, including (1) academic and non-academic assessment; (2) innovative basic skills and occupational skills instruction; (3) academic and non-academic supports; and (4) strategies to connect training participants and employers. Programs within the career pathways framework vary widely in the levels of training they cover. Training steps might range from instruction in basic academic and social skills needed to enroll in occupational training to a four-year college degree and beyond.

Previous PACE reports assessed Carreras's implementation and early (18-month) impacts on education and employment-related outcomes; and its intermediate-term (three-year) impacts on educational progress, labor market outcomes, and family well-being.⁷ The present report extends the impact analyses to six years, again analyzing impacts on educational progress, employment, earnings, and individual and family well-being.

Other Programs in PACE

- **Bridge to Employment in the Healthcare Industry**, San Diego Workforce Partnership, County of San Diego, CA*
- **Health Careers for All**, Workforce Development Council of Seattle–King County, Seattle, WA*
- **Integrated Basic Education and Skills Training (I-BEST) program** at three colleges (Bellingham Technical College, Everett Community College, and Whatcom Community College), Washington State
- **Pathways to Healthcare**, Pima Community College, Tucson, AZ*
- **Patient Care Pathway Program**, Madison College, Madison, WI
- **Valley Initiative for Development and Advancement (VIDA)**, Lower Rio Grande Valley, TX
- **Workforce Training Academy Connect**, Des Moines Area Community College, Des Moines, IA
- **Year Up**, Atlanta, Bay Area, Boston, Chicago, National Capital Region, New York City, Providence, and Greater Seattle

*Programs funded through ACF's Health Profession Opportunity Grants (HPOG) Program.

⁶ For more on PACE see <https://www.acf.hhs.gov/opre/project/career-pathways-research-portfolio>.

⁷ The early impacts report (Martinson et al. 2018) is available at <https://www.acf.hhs.gov/opre/report/instituto-del-progreso-latinos-carreras-en-salud-program-implementation-and-early>; the intermediate-term impacts report (Gardiner, Martinson, and Dastrup 2021) is available at <https://www.acf.hhs.gov/opre/report/instituto-del-progreso-latinos-carreras-en-salud-program-three-year-impact-report>.

1.2 Carreras en Salud

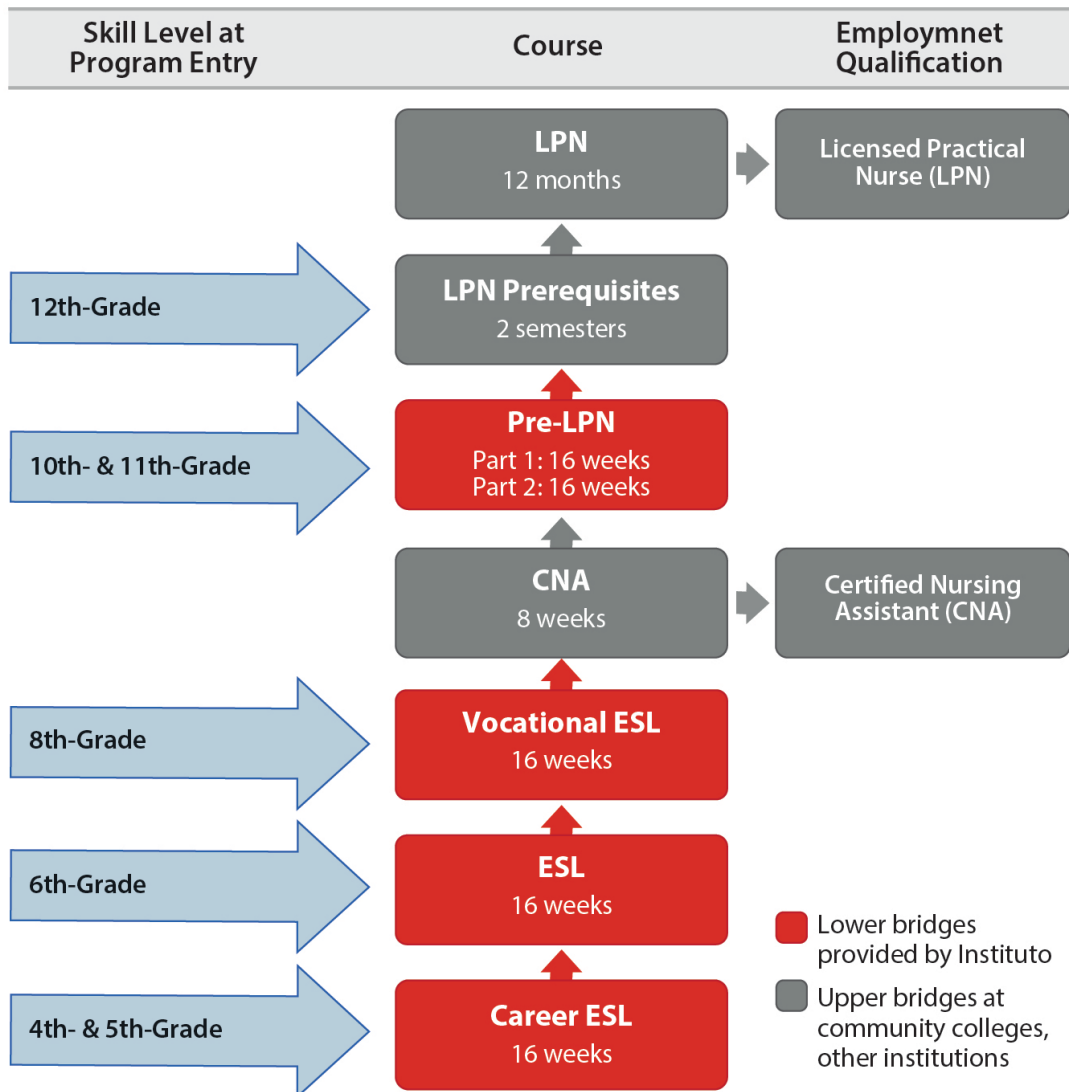
Established in 2005 by the nonprofit Instituto del Progreso Latino (Instituto), Carreras aims to help Latino adults with low income to prepare for and enroll in occupational training to earn Certified Nursing Assistant (CNA) and LPN credentials.⁸ The program targets those residing in the Chicago metropolitan area who are U.S. citizens or legal residents, whose family incomes are below \$35,000 per year, whose English reading and writing skills are at the fourth-grade level or above, who are bilingual English/Spanish speakers, and who are interested in healthcare careers.

As Exhibit 1-1 shows, the Carreras pathway consists of seven steps, starting at the fourth-grade literacy level and continuing through college. Two of the seven steps are associated with credentials: CNA and LPN. Carreras staff describe the CNA credential as an *interim* step on the way to an LPN credential—not a destination. This is because average CNA wages do not lift participants much above the poverty level.

In the exhibit, the four “lower bridge” steps are indicated in red. Career English as a Second Language (ESL), ESL, and Vocational ESL prepare students for the CNA step. The Pre-LPN step prepares students for LPN Prerequisites, which in turn prepare them for the LPN program. The three “upper bridges” (CNA, LPN Prerequisites, and LPN) are in grey. During the study period, lower bridge steps were taught at Instituto, and upper bridge steps at City Colleges of Chicago campuses. After the study, Instituto launched an accredited college, Instituto College, which brought one of the three Carreras college-level steps in house (CNA).⁹

⁸ Students can continue to Registered Nurse programs, though those programs are not a step on the Carreras nursing pathway.

⁹ As of June 2021, the college offered Associate Degree in Nursing and Basic Nursing Assistant programs. Staff indicate Instituto College will eventually add an LPN program to its offerings.

Exhibit 1-1: Carreras en Salud Nursing Pathway

Carreras also addresses the issues that make enrolling in and completing training difficult for older students who are combining school with work and/or family responsibilities, have low basic skills levels (including English literacy), and have limited financial resources. The program offers:

- *Contextualized and accelerated basic skills instruction.* The lower bridge steps provide basic skills instruction within the context of healthcare occupations using healthcare vocabulary. The steps are designed such that participants gain one or two grade levels of proficiency in reading and math in each 16-week step.
- *Academic advising and non-academic supports.* For the lower bridges, Carreras provides one-on-one assistance to address barriers to students' enrollment and persistence, including provision of childcare, assistance with transportation and

accessing public benefit programs, academic advising, and tutoring. For the upper bridges, Carreras provides academic advising.

- *Financial assistance.* The lower bridges are free to participants. Staff help upper bridge participants apply for financial aid, such as Pell grants, to cover college tuition.
- *Employment services.* Carreras offers one-on-one job search assistance and a one-week job readiness workshop. Additionally, Carreras staff identify healthcare-related job openings, promote the program to employers, and connect employers with program completers. Staff also help participants find work while they are in the program, as needed.

1.3 Evaluation Design

To measure Carreras’s impacts, the research team randomly assigned 800 eligible applicants to a treatment or control group from November 2011 to September 2014. The team subsequently measured and compared average outcomes for the two groups over time. Carreras encouraged treatment group members to enroll in the program. Control group members could not enroll in the program but could pursue other training and services in the community.

The team used a random assignment research design to estimate the impacts of access to Carreras. This design ensures that estimated impacts can be attributed to access to the program and not to unmeasured differences in characteristics or external circumstances between study participants with access to the program (treatment group) and without access (control group).

1.3.1 Hypothesis Testing

An essential principle in the PACE analysis plan is to conduct the statistical tests in a way that minimizes the number of false positive impacts due to chance (i.e., the “multiple comparison” problem). To address this risk, the project established three categories of hypotheses: confirmatory, secondary, and exploratory. The team assigned outcomes to a category based on the program’s theory of change.

Confirmatory hypotheses focus on a very few outcomes that indicate whether the program is producing the results expected at a given follow-up duration. For this Carreras six-year follow-up report, the team prespecified one confirmatory outcome in each of two domains. The confirmatory outcome in the education domain is *receipt of a college credential after eight or more months of full-time-equivalent (FTE) college enrollment by the 24th follow-up quarter*¹⁰ (the associated credential on the Carreras nursing pathway is an LPN). The confirmatory outcome in the employment domain is *average quarterly earnings in the 23rd and 24th follow-up quarters*.

¹⁰ The team specified this outcome as a proxy for credentials requiring at least a year of full-time college, which the National Student Clearinghouse does not identify directly.

Secondary hypotheses address eight additional indicators of program success for which the team expected impacts in a particular direction. Secondary outcomes in the employment domain are *average quarterly earnings of \$6,825 or more in the 24th and 25th follow-up quarters* (an indicator of full-time employment at \$15/hour); *average total earnings in follow-up Years 4-6*; and *working full-time, working in the healthcare field, and working in a job that provides five types of benefits*. There are another two secondary outcomes in the financial well-being domain: *ability to handle a financial emergency of \$400 from a checking or savings account* and *total debt*.

Exploratory hypotheses address a larger number of possible impacts. Examples of exploratory outcomes are employment and earnings in a variety of years and quarters, additional measures of college enrollment and credential receipt, other measures of financial well-being, and several measures related to parenting and child well-being.

The research team published the six-year analysis plan for Carreras and other PACE sites on the Open Science Framework website and registered confirmatory and secondary outcomes before beginning the estimation of six-year impacts (Fein, Judkins, and Buron 2021).¹¹ Doing so publicly committed the research team to hypotheses and an estimation approach; and it aligns with ACF's commitment to promote rigor, relevance, transparency, independence, and ethics in the conduct of evaluations.¹²

Influence of COVID-19. From March 2020 on, a global outbreak of the coronavirus SARS-CoV-2 began to spread rapidly in the U.S. The resulting disease – COVID-19 – created a massive economic downturn. Between February 2020 and April 2020, unemployment rose to a level not seen since the Great Depression, and remained high (6.9 percent) through at least October 2020. The negative effects were particularly heavy for the low-income and minority communities targeted in PACE programs. Many key measures in the six-year impact analyses concern outcomes occurring at the end of a six-year follow-up period. About a quarter of the Carreras sample enrolled in the study towards the end of the enrollment period (second and third quarters of 2014). For this subset of study participants, the six-year follow-up window included the second and third quarters of 2020, which were affected by the COVID-19 pandemic. Thus, the six-year earnings outcomes for a quarter of the sample potentially could have been affected by COVID-19.

If the pandemic influenced program impacts post-onset, then these influences would affect estimated impacts at different sites to varying degrees. To the extent that PACE programs succeeded in increasing employment in targeted occupations and such occupations were relatively resistant to the downturn, treatment group members might fare considerably better than control group members. The main requirement for an investigation of the potential effects of the pandemic on key outcomes was statistically significant impacts on earnings in the period preceding or following the pandemic's onset. If impacts are absent throughout, the question of

¹¹ <https://osf.io/s97jt/>

¹² ACF's Evaluation Policy is available here: <https://www.acf.hhs.gov/opre/resource/acf-evaluation-policy>

pandemic-related effects on impacts is moot. As documented in supplemental Exhibit 5.1, Carreras had no detectable impact on quarterly earnings in 2019 or 2020; thus, the evaluation team did not further investigate the pandemic's effects.

1.3.2 Analysis Approach and Data Sources

Carreras impact analyses use survey and administrative data to measure impacts as differences in mean outcomes between the randomly assigned treatment and control groups. Although random assignment ensures that, on average, sample members in the two groups have similar characteristics at “baseline” (study entry), the analysis controls for baseline characteristics to minimize any effects of chance differences arising at random assignment and to improve the precision of impact estimates.

The data sources for this report are:

Baseline surveys. All study participants completed two forms just prior to random assignment: a Basic Information Form, which captured demographic information, family characteristics, educational history, and work and earnings information; and a Self-Administered Questionnaire that collected more sensitive personal information.¹³ As in prior PACE reports, the research team used the baseline data for subgroup analyses, nonresponse analysis, and regression adjustment of impact estimates.

Six-year follow-up survey. This survey measured participant outcomes and program impacts on employment progression, educational attainment, current employment conditions, student debt, financial well-being, and other life circumstances six years after that random assignment. The Carreras response rate was 68 percent overall (72 percent for the treatment group and 62 percent for the control group).¹⁴ In a separate appendix volume, Appendix B.1 provides detailed descriptions of the six-year outcomes used in this report (Judkins, Roessel, and Durham forthcoming).¹⁵

Earlier follow-up surveys. For some outcomes, measures blend six-year survey data with data from the short-term (18-month) and intermediate-term (three-year) follow-up surveys (see Appendix B.1).¹⁶ For example, the *all credentials received since random assignment* measure combines data from the first follow-up survey (receipt of certifications and licenses from institutions other than schools earned in the short term) with data from the second follow-up

¹³ Because the Self-Administered Questionnaire asked for personal information (criminal records, psycho-social skills, social support, and personal and family challenges), study participants filled out a paper form and then placed it in a sealed envelope that program staff sent to Abt Associates for data entry.

¹⁴ The response rate yielded survey responses for 540 study participants (290 in the treatment group and 250 in the control group). The median response was collected 70 months after random assignment.

¹⁵ This volume provides details on the common methodology used to report on the six-year impacts of nine programs being evaluated as part of the PACE project.

¹⁶ The full survey instrument is available at https://www.reginfo.gov/public/do/PRAViewIC?ref_nbr=201802-0970-010&icID=227184

survey (school-issued credentials during the first three years after random assignment and credentials issued by other authorities after 18 months but before 36 months) with data on credentials reported in the third follow-up survey.

Administrative records. The report draws on administrative data from two sources:

The *National Student Clearinghouse (NSC)* collects data on student enrollment, degrees earned, and other credential completion from most U.S. institutions of higher education.¹⁷ NSC data provide key measures of college enrollment and credential receipt for the report and figure into certain technical data adjustments.¹⁸ Like most administrative data, the underlying records are limited in coverage and content in accordance with the administrative system's purposes.¹⁹ This report draws on a February 2021 match of the study sample to NSC records, which contains data through the end of 2020. This represents 25 quarters of follow-up for the sample.

The *National Directory of New Hires (NDNH)* aggregates wage records reported on a quarterly basis to states by employers per Unemployment Insurance program requirements. These records are a key source for earnings and employment data in this report. Maintained by the federal Office of Child Support Enforcement within ACF, NDNH wage records cover most private employers as well as the federal (civilian and military) workforce. This report draws on a March 2021 match of the study sample to NDNH records, which contains data through the end of 2020. As with NSC data, this represents 25 quarters of follow-up for the sample.²⁰

Appendices C and D provide additional detail about National Student Clearinghouse and National Directory of New Hires data, respectively.

1.3.3 Characteristics of Study Participants

Exhibit 1-2 compares characteristics of treatment and control group members at study entry (baseline). Most Carreras study participants were older than the traditional college student: more than half (55 percent) were age 25 or older at the time of study entry. Most participants were women (93 percent), and virtually all (99 percent) identified as Hispanic, consistent with the mission of the program. Less than half (45 percent) were living with children, with or without spouses or partners. Almost half reported their highest level of education was a high school diploma or equivalent. Equal proportions had less than a high school diploma and an associate degree or higher.

¹⁷ Designed to aid the administration of student loan programs, NSC data also lets researchers study college access, persistence, and credential receipt.

¹⁸ Appendix B.4 describes these technical applications, which mainly involve nonresponse analysis and weighting.

¹⁹ For example, because NSC is used mainly to verify federal financial aid eligibility, its coverage is generally very high but lower for private, for-profit colleges that do not rely on federal aid. Federal aid is limited to accredited, degree-granting institutions, so NSC also does not cover other kinds of schools.

²⁰ Appendices D.1 and D.2 provide additional details.

Also consistent with the enrollment criteria, participants were low-income. About three-quarters had family incomes of \$30,000 or less in the 12 months prior to study entry. Though 42 percent reported receiving Supplemental Nutrition Assistance Program (SNAP) benefits or Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) benefits, few received public assistance (5 percent). More than one third (37 percent) reported experiencing financial hardship and about half (51 percent) worked at least part-time in the 12 months prior to study enrollment.

Exhibit 1-2. Selected Characteristics of the Carreras en Salud Sample at Study Entry

Characteristic	All Study Participants	Treatment Group	Control Group	p-Value
Age (%)				.529
20 or under	17.9	17.4	18.3	
21 to 24	26.6	28.9	24.4	
25 to 34	34.1	33.3	34.9	
35 or older	21.4	20.4	22.4	
Sex (%)				.227
Female	92.9	91.8	94.0	
Male	7.1	8.2	6.0	
Race/Ethnicity (%)				.664
Hispanic, any race	99.4	99.2	99.5	
Black, non-Hispanic	0.0	0.0	0.0	
White, non-Hispanic	0.6	0.8	0.5	
Another race, non-Hispanic	0.0	0.0	0.0	
Family Structure (%)				.209
Not living with spouse/partner and not living with children	43.0	45.0	41.0	
Not living with spouse/partner but living with children	24.1	20.9	27.3	
Living with spouse/partner and not living with children	11.7	12.3	11.1	
Living with spouse/partner and children	21.3	21.9	20.6	
Living with parents	36.1	32.8	34.0	
Current Education (%)				.242
Less than a high school diploma	9.7	9.8	9.6	
High school diploma or equivalent	49.2	47.6	50.9	
Less than one year of college	13.7	16.3	11.1	
One or more years of college	17.4	17.5	17.2	
Associate degree or higher	10.0	8.8	11.1	
Family Income in Past 12 Months (%)				.767
Less than \$15,000	34.4	35.5	33.2	
\$15,000 to \$29,999	41.5	40.4	42.6	
\$30,000 or more	42.1	24.1	24.2	
Mean (\$)	\$21,051	\$20,702	\$21,397	.506

Characteristic	All Study Participants	Treatment Group	Control Group	p-Value
Public Assistance / Hardship in Past 12 Months (%)				
Received WIC or SNAP	42.4	41.8	42.9	.780
Received public assistance or welfare	4.7	4.2	5.2	.505
Reported financial hardship ^a	36.8	35.8	38.1	.469
				.953
Current Work Hours Per Week (%)				
0	48.9	49.0	48.9	
1 to 19	5.8	5.8	5.8	
20 to 34	20.7	21.3	20.0	
35 or more	24.6	23.9	25.3	
Sample size	800	402	398	

Key: SNAP=Supplemental Nutrition Assistance Program. WIC=Special Supplemental Nutrition Program for Women, Infants, and Children.
Source: PACE Basic Information Form.

^a *Financial hardship* is defined as having ever missed rent/mortgage payment in prior 12 months or reported generally not having enough money left at the end of the month to make ends meet over the last 12 months.

Note: There are no significant differences at the $p = .10$ level. Some percentages for characteristics do not add up to 100 percent due to rounding: Public Assistance / Hardship in Past 12 Months does not add up to 100 percent because the categories are neither mutually exclusive nor exhaustive.

1.4 Findings from Earlier PACE Reports on Carreras and Implications for Six-Year Report

The *Carreras Implementation and Early Impact Report* (Martinson et al. 2018) and *Three-Year Impact Report* (Gardiner, Martinson, and Dastrup 2021) provide useful context for the six-year report. The first report described the implementation of Carreras's program components, impacts on education, and impacts on career pathways employment. The intermediate report documented three-year impacts on educational outcomes, employment, earnings, and individual and family well-being.

Key findings through three years include the following.

From the implementation study:

- ***Carreras operated largely as designed.***

Carreras staff contextualized lower bridge reading and writing classes with healthcare content. At the time of the final implementation study visit (2014), staff worked with instructors to incorporate healthcare examples into math lectures and class materials. Lower bridge students could access academic and non-academic advising, childcare, and employment services at Instituto. Academic advisors visited upper bridge students at their colleges. Upper bridge students could receive employment services, but they needed to go to Instituto or use services available to all students at their colleges.

- ***Most Carreras students enrolled in at least one pathway step, and almost half of them progressed to a second step.***

In the first three years, 93 percent of students enrolled in at least one training course, 44 percent progressed to a second training, and 15 percent progressed to a third training. Among those who progressed to a third training, 80 percent enrolled in the Pre-LPN step or higher, thus were at various stages of working towards an LPN.

From the impact study:

- ***Carreras had substantial positive impacts on education and training.***

Starting at 18 months after random assignment and continuing through three years, Carreras increased credential receipt. By three years, the program had a 12 percentage point impact on *receipt of any college credential* (29 percent of treatment group members versus 17 percent of control group members), which includes CNA and LPN certifications. In addition, the program had a 23 percentage point impact on *receipt of an exam-based certification or license* (40 percent versus 17 percent). The larger share of certifications and licenses than any college credentials reflect that CNAs and LPNs need to pass a licensing exam to work in these occupations.²¹ The program had a positive but much smaller impact, 3 percentage points, on *receipt of a college credential requiring at least one year of study to earn*, which for Carreras is the LPN (12 percent of treatment group members versus 9 percent of control group members). The program also had a positive impact on *any college enrollment* at three years. However, through three years there was no detectable impact on *full-time college enrollment in any quarter*; participants generally attended college part-time.

- ***Carreras did not have detectable impacts on earnings, employment, or other economic outcomes.***

As of the three-years post study entry, Carreras had no detectable impact on average quarterly earnings in the 12th and 13th follow-up quarters. The program had no detectable impact on employment overall nor on any facet of career pathways employment specifically.²² Finally, Carreras did not have a detectable impact on confidence in career knowledge and access to career supports, or on measures of family economic well-being (health insurance coverage, receipt of means-tested public assistance, unsecured debt of \$5,000 or more, or signs of financial distress).

In summary, Carreras significantly increased receipt of any college credential three-years after enrollment in the study. It also generated a somewhat smaller increase in a proxy measure for receipt of college credentials requiring at least one year of study. Together, those findings suggest that more Carreras students were earning CNAs than LPNs, and that few CNA

²¹ The difference between reports of certifications and licenses and college credentials could also reflect attainment of CNA and LPN credentials at schools other than colleges.

²² *Career pathways employment* outcomes include working in a healthcare occupation, earning \$12 or more per hour (approximately 60 percent of the hourly wages among employed control group members), or working in a middle-skills job.

completers subsequently earned LPNs. Program designers recognize that average CNA wages are low, and thus promote CNA as an initial credential, not an education destination.

Observable earnings impacts will likely require large impacts on LPN receipt. For several reasons, three years was plausibly too early to expect larger impacts on longer-term credentials. First, most treatment group members began in a lower bridge or the CNA step. This is several steps below an LPN. Less than half of participants attended two or more courses and those who did often moved within the lower bridge steps or to the CNA one. Second, few participants enrolled in college full-time. LPN and the previous pathway step, LPN Prerequisites, are offered at City Colleges of Chicago and not Instituto. Because most participants attend college part time, courses that take a year each for a full-time student take up to four years for a part-time student to complete. Thus, many participants who ultimately reach the LPN step will likely take more than three years to both complete prior steps and then the LPN.

This enrollment pattern through three years suggested that there was a pipeline of students who might subsequently enroll in and complete an LPN program. An impact on earnings at six years was therefore plausible.

The three-year report concluded with the following research questions for the six-year follow-up:

- Will impacts on higher-level credentials continue to grow? That is, will students in the LPN preparation steps eventually enroll in and complete LPN programs—at all and at rates higher than for the control group?
- Will impacts on earnings emerge, perhaps driven by an impact on higher-level (primarily LPN) credential receipt?
- Will impacts on employment emerge? That is, will Carreras have an impact on employment in the healthcare sector, employment in jobs paying \$15 or more per hour, and career progress?
- Will impacts on family economic well-being and child outcomes emerge because of impacts on education, employment, or earnings?

1.5 Organization of This Report

The remainder of this report presents and assesses the implications of Carreras's impacts over a six-year follow-up period. Chapters 2, 3, and 4 present the main findings on impacts in the education, employment, and other life domains, respectively. Chapter 5 summarizes and interprets the findings, discusses implications of the findings for interested stakeholders, and poses additional questions for researchers.

The report references technical appendices in a separate volume (Judkins, Roessel, and Durham forthcoming) that provides details on the common methodology used to report on the six-year impacts of the nine programs evaluated in the PACE project.

The text box *How to Read Impact Tables* below describes how to navigate and understand the tables in the impact chapters.

How to Read Impact Tables

Many exhibits in Chapters 2-4 follow a common format in reporting impacts.

The left-most column identifies the **Outcome** whose findings appear in each row.

The next column (**Treatment Group**) presents the treatment group's regression-adjusted mean outcome, followed in the next column by the control group's actual mean outcome (**Control Group**). Regression adjustment corrects for random variation in baseline covariates between the two groups and improves the precision of the estimates.

The next column (**Impact**) is the difference between the treatment and control group means—that is, the impact of being offered Carreras en Salud. The **Standard Error** column is a measure of uncertainty in the estimated impact that reflects chance variation due to randomization and any measurement error. The column labeled **Relative Impact** presents the impact as a percentage change from the control group mean. It offers a sense of how “big” or “small” the impact of the program on the treatment group is, at least relative to the control group's level.

For outcomes with no natural unit of measurement we report an **Effect Size** instead of the relative impact. The effect size is a standardized measure that defines impacts as a fraction of the pooled standard deviation across the treatment and control groups. It offers a sense of the size of the impact relative to how much the outcome varies across the full sample and allows for comparison of the size of the impact across scale outcomes.

The final column, **p-Value**, is the probability that the observed or a larger difference between the treatment and control groups would occur by chance, even if there was in reality no difference between the two groups.

Statistical significance

This report identifies estimated impacts as statistically significant if their associated *p*-values are below .10. The smaller the *p*-value, the more likely that the observed difference between the treatment and control groups is real, rather than occurring by chance. Asterisks distinguish results that are statistically significant:

* at the 10 percent level ($p < .10$)

** at the 5 percent level ($p < .05$)

*** at the 1 percent level ($p < .01$)

Categories of findings

Tests of statistical significance for confirmatory and secondary outcomes are one-sided tests because their associated hypotheses have direction. The impact tables highlight these outcomes using **bolded text**. Tests of significance for exploratory outcomes are two-sided because we do not have a directional hypothesis. Tables present these outcomes using regular (not bolded) text.

2. Impacts on Postsecondary Training

This chapter provides findings on Carreras’s six-year impacts on postsecondary training. The program’s theory of change posits that the seven-step nursing pathway—combined with academic supports, non-academic supports in the lower bridges, and employment assistance—will prepare participants to enroll in and complete occupational credentials with labor market value and to find related employment.

By six years after random assignment, it is reasonable to expect to observe an increase in receipt of a longer-term credential for the treatment group relative to the control group. For participants whose first step was an LPN preparation step (Pre-LPN or LPN Prerequisites) or the LPN step itself (about 40 percent of participants), receipt of an LPN credential should be within reach in six years, even among participants who attend college part-time. Participants who first earned a CNA credential (17 percent) would be positioned to enroll in and complete LPN preparation steps and potentially complete an LPN credential, depending on when in the study period they earned their CNA, how much time they spent in the labor force after earning their CNA, and whether they attended the LPN Prerequisite step and LPN step part- or full-time. (The remaining 35 percent of participants first entered a pre-CNA step.) Thus, for the six-year follow-up period, the research team specified as the confirmatory education outcome a proxy for a college credential taking a year or more to earn. That is, the confirmatory outcome at six years is *receipt of a college credential after eight or more months of FTE college enrollment by the 24th follow-up quarter*.

This chapter presents the impact on credentials and college enrollment using NSC data. It then provides additional information about the types of credentials earned based on six-year follow-up survey data.

2.1 Impact on Education

As measured in the NSC, Carreras continued to have some impact on credential receipt and college enrollment beyond Year 3, but the incremental impacts are small.

- ***Carreras had a small, positive impact on receipt of college credentials preceded by eight or more FTE months of enrollment by quarter 24.***

Six years after random assignment, Carreras increased receipt of a credential that would take eight months of full-time college enrollment to earn by 4 percentage points (Exhibit 2-1). As noted in Chapter 1, the associated credential on the Carreras nursing pathway is an LPN. Seventeen (17) percent of treatment group members earned such a credential, compared to 13 percent of control group members. The proportion of treatment group members earning this type of credential at six years exceeds the proportion who earned a similarly measured

credential three years after random assignment (12 percent), but is still a small proportion of the treatment group.²³

Exhibit 2-1 also shows that Carreras’s statistically significant and positive impact on any college credential (not necessarily taking eight or more FTE months) extended past Year 3.²⁴ Between follow-up Years 4 and 6, the program had a 5 percentage point impact on college credential receipt.

Exhibit 2-1: Impact on College Credentials

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	p-Value
Credentials						
Confirmatory Outcome: Received college credential preceded by 8+ FTE months of enrollment by Q24 (%)	16.8	13.1	+3.8*	2.4	29.0	.057
Received associate or higher degree by Q24 (%)	10.7	8.8	+1.9	2.0	22.0	.167
Received any college credential after year 3 (%)	15.2	10.6	+4.7**	2.3	44.4	.043
Sample size	401	398				

Source: National Student Clearinghouse.

Note: Hypothesis tests are one-sided for confirmatory outcomes and two-sided for other (exploratory) outcomes. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., $100 * [\text{impact} / \text{control group mean}]$).

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

- **Carreras had an impact on the cumulative percentage of treatment group members who earned a college credential preceded by 8+ months of college enrollment.**

As shown in Exhibit 2-2 shows, Carreras’s impact on receipt of a college credential taking 8+ months of FTE of enrollment to earn, began in quarter 20 and continued for three of the subsequent five quarters using NSC data.²⁵ In quarter 20, about 15 percent of treatment group members earned such a credential compared to 11 percent of control group members, for a 4 percentage point impact. By quarter 25, the end of the follow-up period, 17 percent of treatment group members earned a longer-term credential. Because control group members also continued to earn such a credential, the impact remained about the same (4.1 percentage points). The impact on receipt of any college credential began earlier (quarter 15) and continued through the end of the follow-up period, when Carreras had a slightly larger (6 percentage point)

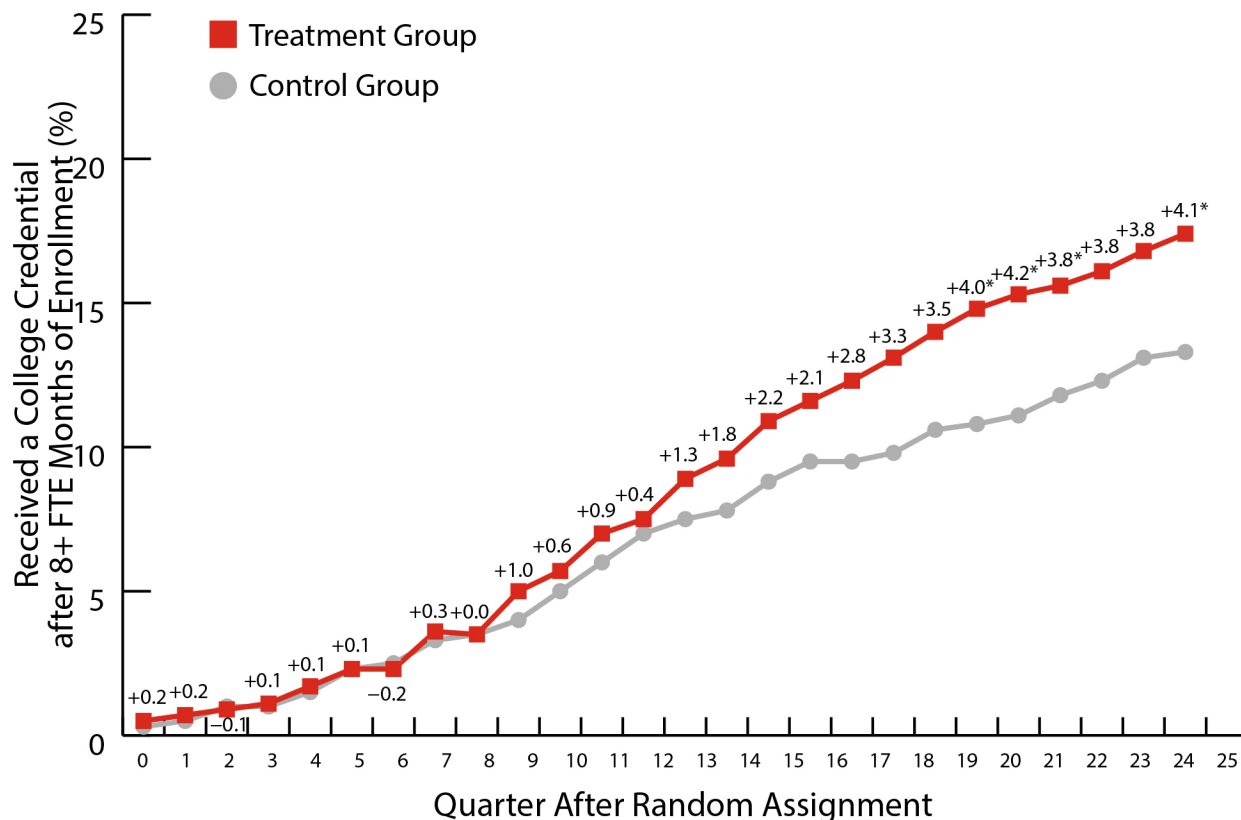
²³ This is a different outcome than the confirmatory measure in the education domain for the three-year analysis. The three-year measure was *received a college credential taking one or more years of study to earn*. See Gardiner, Martinson, and Dastrup (2021).

²⁴ At the three-year follow up, Carreras had a 12 percentage point impact on receipt of any college credential (29 percent of the treatment group versus 17 percent of the control group).

²⁵ Colleges determine what data to report to NSC, and NSC does not screen, edit, or classify reported credentials. Thus, what is included in “a college credential” varies from college to college.

impact on college credentials earned (22 percent of the treatment group versus 16 percent of the control group) (not shown).

Exhibit 2-2: Percent Ever Receiving a College Credential after 8+ FTE Months of College Enrollment, by Follow-up Quarter



Source: National Student Clearinghouse.

Sample size: treatment group: 401; control group: 398

Note: Hypothesis tests are one-sided for confirmatory outcome (received college credential preceded by 8+ FTE months of enrollment by Q24) and two-sided for the percent ever receiving a college credential after 8+ FTE Months of college enrollment for other follow-up quarters. Asterisks indicate statistical significance at the: * 10 percent level.

- ***Carreras had a significant positive impact on college enrollment after Year 3.***

Exhibit 2-3 shows that the program significantly increased any college enrollment after Year 3, by 7 percentage points (30 percent of the treatment group versus 23 percent of the control group).

This finding is not unexpected, given the impact on receipt of a college credential after Year 3.

Exhibit 2-4 (below) shows that the impact on any college enrollment is limited to Year 4 (quarters 12 through 15), and fades beginning in quarter 16. By the last quarter of follow-up, there was no difference in enrollment by group, with about 9 percent of treatment and control group members enrolled in college.

The evaluation team also assessed Carreras's impact on different measures of months of college enrollment. Months with *any* enrollment captures part-time and full-time enrollment. *Full-time enrollment FTE months enrolled in college* is a cumulative measure for a given follow-up period. It is the sum of values ranging from zero to one for each month, where the value is determined by either the fraction of time an individual enrolled part-time, one for full-time enrollment, or zero for not enrolled. Impacts on FTE enrollment is one useful tool for assessing Carreras's effect on college-going, because it captures all enrollment, full-time or part-time, and appropriately weights each to reflect the total share of time in school.

As shown in Exhibit 2-3, Carreras increased FTE months of college enrollment by one month. The program also increased months with any enrollment through year 4. The program, however, did not affect total months with any full-time enrollment. This suggests participants attended part time.

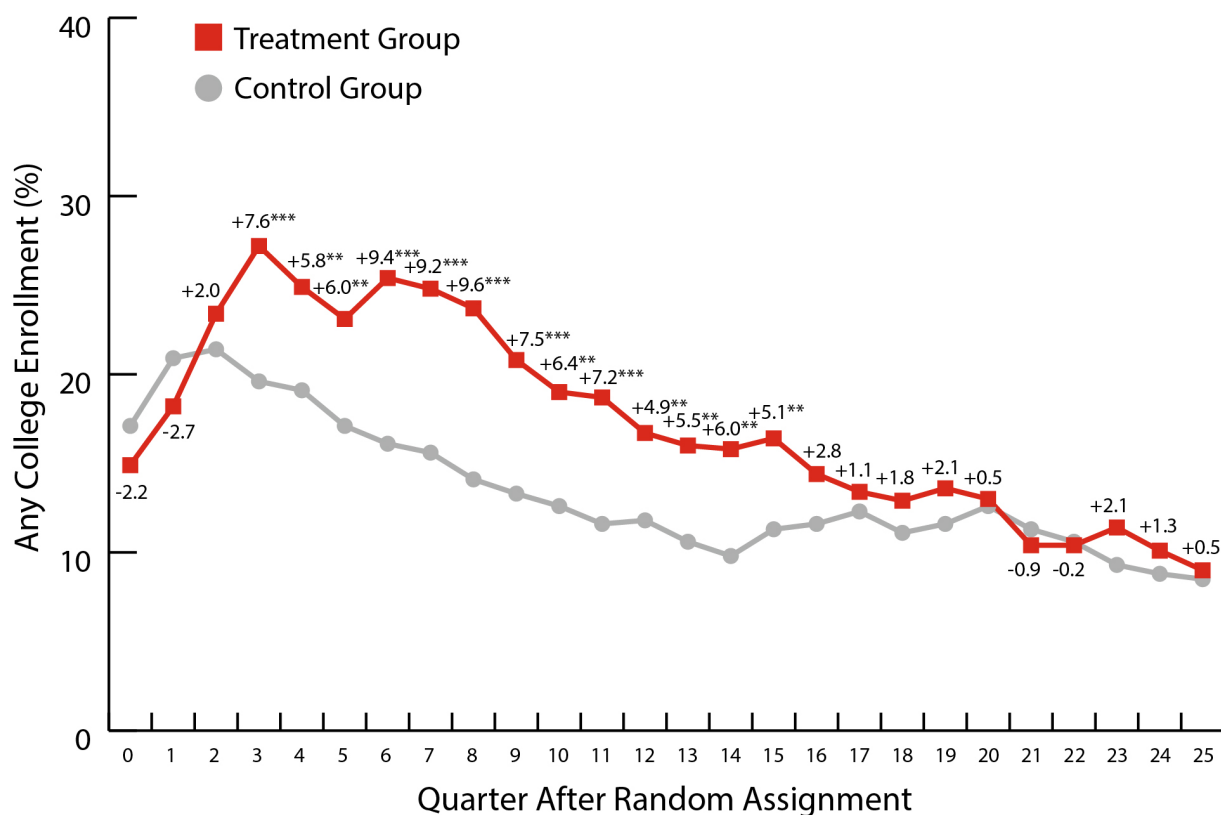
Exhibit 2-3: Impact on College Enrollment

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	p-Value
Any college enrollment after year 3 (%)	30.1	22.9	+7.2**	3.0	31.5	.017
Total months with any college enrollment across years 1-6	11.0	8.5	+2.5**	1.0	29.1	.018
Total months with any full-time college enrollment across years 1-6	2.4	2.4	+0.1	0.4	2.8	.880
Cumulative FTE months of college enrollment across years 1-6	6.3	5.2	+1.1*	0.7	21.9	.087
Total months with any college enrollment in follow-up:						
Year 1 (quarters 0-3)	2.1	2.0	+0.1	0.2	4.1	.733
Year 2 (quarters 4-7)	2.6	1.8	+0.8***	0.3	44.0	.003
Year 3 (quarters 8-11)	2.2	1.3	+0.8***	0.2	63.3	<.001
Year 4 (quarters 12-15)	1.7	1.1	+0.5**	0.2	46.2	.025
Year 5 (quarters 16-19)	1.4	1.2	+0.2	0.2	17.8	.333
Year 6 (quarters 20-23)	1.1	1.1	+0.0	0.2	0.1	.995
Sample size	401	398				

Source: National Student Clearinghouse.

Note: All hypothesis tests and associated p-values in this table are based on two-sided tests. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., $100 * [\text{impact} / \text{control group mean}]$).

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

Exhibit 2-4: Percentage Enrolled in College, by Quarter

Source: National Student Clearinghouse.

Sample size: treatment group: 401; control group: 398

Note: Statistical significance levels based on two-tailed tests of differences between research groups: * 10 percent level, ** 5 percent level, *** 1 percent level.

2.2 Additional Details on Credentials Earned

The previous section presented results based on NSC data. The six-year follow-up survey provides additional detail about the types of credentials study participants earned and where they earned them. The findings are presented here.

- ***Carreras had a positive impact on receipt of credentials from licensing/certification bodies.***

Survey data show that Carreras had a significant and positive impact on college credentials less than an associate degree, as well as on any college credential. The program also had a significant, positive impact on receipt of a credential from a licensing or certification body (45 percent of treatment group members versus 31 percent of control group members). Carreras increased receipt of a credential from any source by 11 percentage points (71 percent of the treatment group versus 60 percent of the control group).

Exhibit 2-5: Credential Receipt from Any Source

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	p-Value
Ever received credential after random assignment from: (%)						
A college						
Associate degree or higher	13.9	14.8	-0.9	2.9	-6.3	.744
Less than associate degree	30.1	18.7	+11.4***	3.8	61.2	.002
Any college credential	37.7	29.3	+8.4**	4.0	28.6	.036
Another education/training provider	29.1	34.4	-5.3	4.2	-15.5	.201
A college or other training provider	57.4	50.8	+6.6	4.4	13.1	.131
A licensing/certification body	45.4	30.6	+14.7***	4.3	48.0	<.001
Any of the above sources	70.7	60.1	+10.6**	4.3	17.7	.013
Sample size (all survey respondents)	289	247				

Source: PACE six-year follow-up survey.

Note: All hypothesis tests and associated p-values in this table are based on two-sided tests. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., $100 * [\text{impact} / \text{control group mean}]$).

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

- ***Carreras had a positive impact on receipt of a healthcare credential.***

Almost 60 percent of treatment group members earned a healthcare credential, compared to 45 percent of control group members, an impact of 15 percentage points (Exhibit 2-6).

Exhibit 2-6: Healthcare Credential Receipt

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	p-Value
Ever received a healthcare credential after random assignment from: (%)						
Any training provider						
Associate degree or higher	9.6	11.4	-1.8	2.5	-15.9	.472
A certificate or diploma	33.8	31.6	+2.2	4.0	7.0	.575
Any credential	44.5	38.8	+5.7	4.3	14.6	.184
A licensing/certification body	38.1	19.0	+19.1***	4.1	100.4	<.001
Any source	59.4	45.0	+14.5***	4.5	32.2	.001
Ever received the following credential: (%)						
Certified Nursing Assistant	16.6	10.9	+5.7*	3.1	52.4	.066
Licensed Practical Nurse	5.8	2.8	+2.9*	1.7	104.6	.090
Sample size (all survey respondents)	289	247				

Source: PACE six-year follow-up survey.

Note: All hypothesis tests and associated p-values in this table are based on two-sided tests. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., $100 * [\text{impact} / \text{control group mean}]$).

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

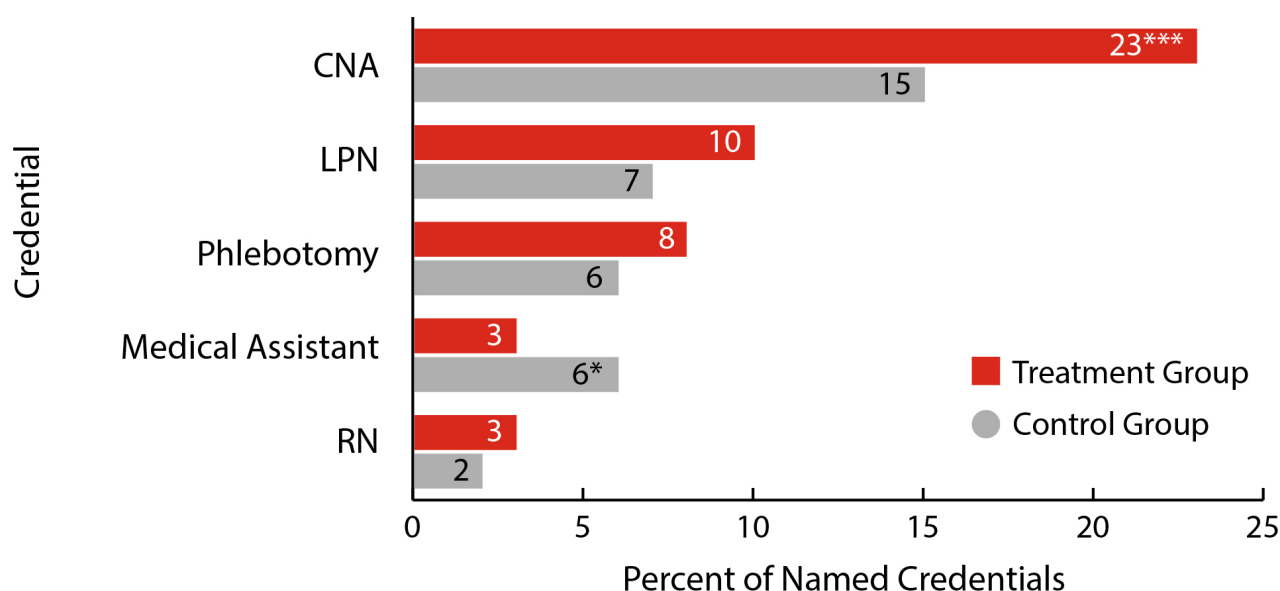
The follow-up survey provides insight into the specific healthcare credentials earned, as respondents who earned a credential could report its name. As the bottom panel of Exhibit 2-5 shows, significantly more treatment group members than control group members reported receipt of the two credentials on the Carreras nursing pathway: CNA (17 percent versus 11 percent) and LPN (6 percent and 3 percent). These figures likely undercount credential receipt

for both groups, however, because some respondents forgot the names of their credentials, and the research team could not classify others.

Another way to examine credentials is to look at credential types as a proportion of all credentials reported (Exhibit 2-7).²⁶ Of credentials named, the most common credential reported by survey respondents in both groups was CNA: 23 percent of treatment group credentials and 15 percent of control group ones (a statistically significant difference at the 1 percent level). LPN was the second most common credential reported, accounting for 10 percent and 7 percent of treatment group and control group credentials, respectively (not statistically significantly different).

More than 10 percent of credentials reported were not part of the Carreras pathway. For example, phlebotomy credentials accounted for 8 percent of treatment group credentials (and a similar proportion of the control group), and medical assistant credentials accounted for 3 percent of treatment group credentials (significantly fewer than the control group's 6 percent; significant at the 10 percent level).

Exhibit 2-7: Credentials Earned by Study Participants



Source: PACE six-year follow-up survey.

Sample size: Treatment group N=361 credentials. Control group N=246 credentials.

Notes: Credential estimates are conditioned on reporting a credential at the time of the survey and thus not purely experimental.

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

²⁶ Collectively, treatment group members reported 446 credentials received, about 50 percent more than did control group members (296). Of credentials reported, treatment group members provided codable names for 361 (81 percent) of them, and control group members provided names for 246 (83 percent).

In summary, Carreras had a 4 percentage point impact on receipt of a credential preceded by eight or more months of FTE enrollment, the confirmatory outcome, as well as the outcome associated with receipt of an LPN (17 percent of treatment group members versus 13 percent of control group members). The program also had a 5 percentage point impact on percent of participants who earned a college credential after Year 3 (15 percent and 10 percent of treatment and control groups, respectively). Carreras had a 7 percentage point impact on college enrollment after Year 3 (30 percent versus 32 percent), but by the end of the study period there was no difference in college enrollment (9 percent of both groups).

The next chapter explores whether Carreras's impacts on credentials translated into employment impacts.

3. Impacts on Employment and Earnings

This chapter presents the impact of Carreras on earnings and employment for the six-year follow-up period. The program's theory of change posits that impacts on credentials—particularly on LPNs—will lead to higher earnings and healthcare-related employment. This analysis used *average quarterly earnings in the 23rd and 24th follow-up quarters* as the confirmatory outcome in the employment domain.

Chapter 2 shows that Carreras had a positive impact on several outcomes related to credential receipt. Whether credential impacts translate into earnings impacts depends on the credential and the size of the impact. As noted in Chapter 1, Carreras staff describe the CNA as an interim step only, because working as a CNA is unlikely to raise the recipient's earnings much above the poverty level. LPNs earn about twice the hourly wage of CNAs. Carreras had an impact on college credentials that take eight or more months of FTE college enrollment to earn, the credential associated with an LPN. As described in this chapter, these education domain impacts, however, do not appear to be large enough to affect most measures of employment and earnings.

3.1 Impact on Earnings

This section presents Carreras's impact on earnings using administrative records from NDNH.

- ***Carreras had no detectable impact on average quarterly earnings in the 23rd and 24th follow-up quarters, the confirmatory outcome for the employment domain.***

Exhibit 3-1 shows that treatment group members did not earn significantly more than control group members. Both groups earned, on average, slightly more than \$6,000 each quarter. However, the 90-percent confidence interval for the estimated impact runs from -\$235 to \$965, meaning that the study cannot rule out either modest, favorable impacts or small, unfavorable ones. As a result, the six-year study cannot definitively answer whether Carreras provided a meaningful boost to participants' earnings. Still, this is the evaluation team's best estimate of the program's impacts and does not presage future impacts.

As Exhibit 3-2 below shows, Carreras did not have a positive impact in any quarter.

- ***Carreras had a small positive impact on average quarterly earnings of \$6,825 or more.***

The program had an impact on one secondary outcome, *average quarterly earnings of \$6,825 or more in the 24th and 25th follow-up quarters* (Exhibit 3-1, second panel). This threshold corresponds to earnings consistent with full-time employment (35 hours per week) at \$15 per hour. Compared to control group members, treatment group members were 6 percentage points more likely to earn above this threshold. The impact was limited to follow-up quarter 24 (not shown). This impact is likely too small to affect average quarterly earnings, and additional analyses shows the impact disappears in quarter 25 (not shown).

The program had no detectable impact on the other secondary outcome in this domain: *average total earnings in follow-up Years 4-6*, although the differential turns positive in Year 6 for the first time (Exhibit 3-1, lower panel).

Exhibit 3-1: Impact on Average Earnings in Specified Follow-Up Periods

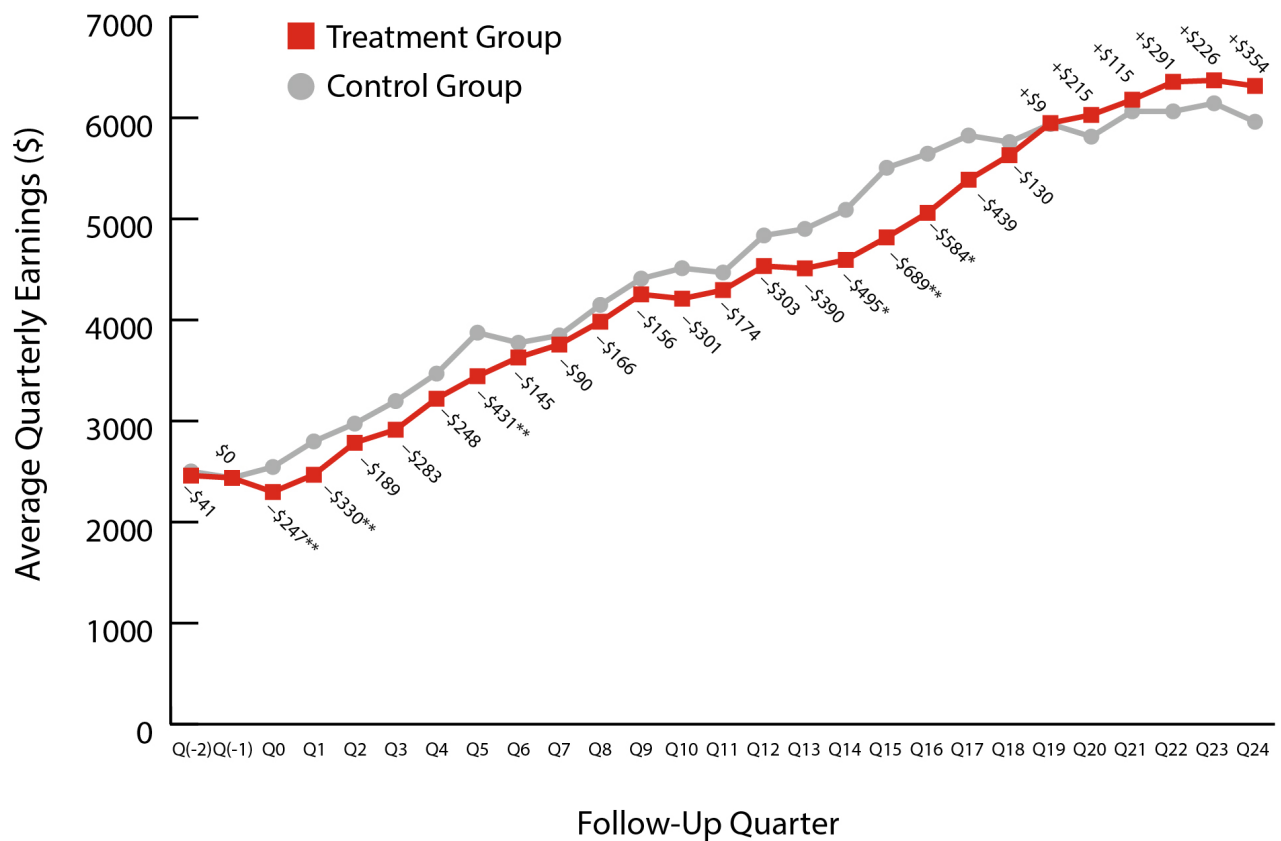
Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	p-Value
Confirmatory Outcome: Average quarterly earnings in follow-up quarters 23 and 24 (\$)	\$6,343	\$6,053	+\$290	\$365	4.8	.214
Average quarterly earnings of \$6,825 or more in quarters 23 and 24 (%)^a	49.2	43.2	+6.0**	3.4	13.8	.041
Average total earnings in follow-up: (\$)						
Year 1 (quarters 0-3)	\$10,465	\$11,515	-\$1,050**	\$507	-9.1	.039
Year 2 (quarters 4-7)	\$14,050	\$14,964	-\$914	\$762	-6.1	.230
Year 3 (quarters 8-11)	\$16,743	\$17,540	-\$797	\$899	-4.5	.376
Year 4 (quarters 12-15)	\$18,455	\$20,332	-\$1,878	\$1,007	-9.2	.969
Year 5 (quarters 16-19)	\$22,026	\$23,169	-\$1,144	\$1,181	-4.9	.833
Year 6 (quarters 20-23)	\$24,935	\$24,087	+\$849	\$1,309	3.5	.259
Years 1-6	\$106,673	\$111,607	-\$4,933	\$4,549	-4.4	.278
Sample size	391	384				

Source: National Directory of New Hires.

^a The \$6,825 cut-point identifies earnings consistent with full-time employment (35 hours/week) at a career-entry wage level (\$15/hour) throughout the quarter.

Note: Rows in **bold** identify confirmatory and secondary outcomes. Other rows are exploratory. Hypothesis tests are one-sided for confirmatory and secondary outcomes and two-sided for other (exploratory) outcomes. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., $100 \times [\text{impact} / \text{control group mean}]$).

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

Exhibit 3-2: Impact on Average Earnings, by Follow-Up Quarter

Source: National Directory of New Hires.

Sample size: treatment group: 391; control group: 384

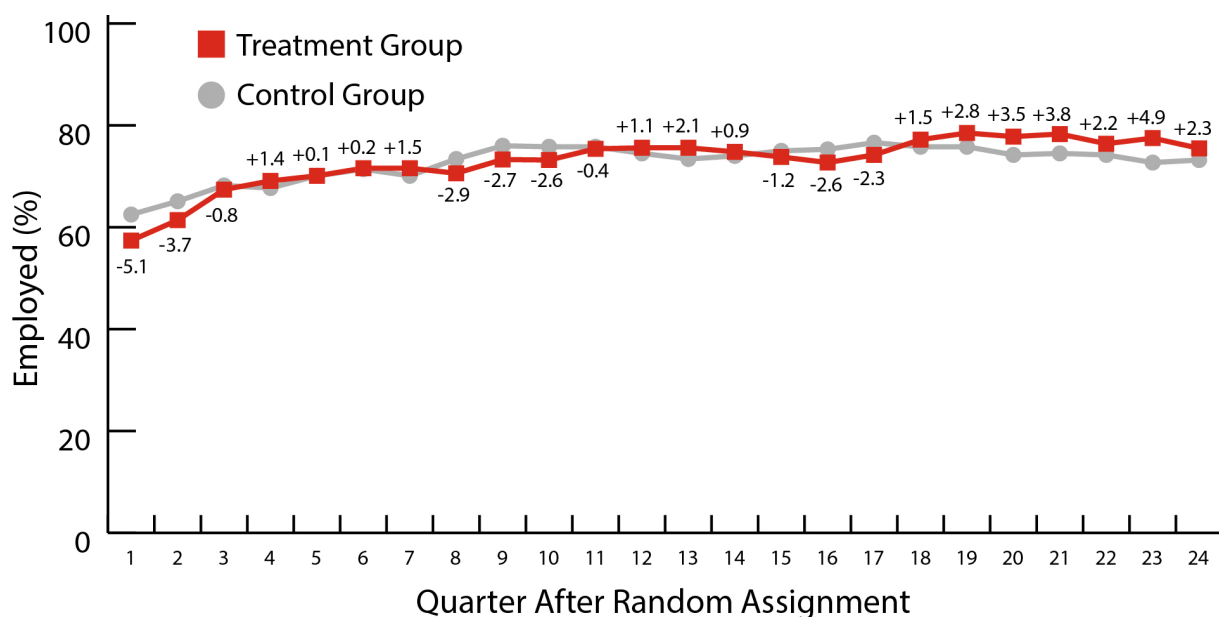
Note: Statistical significance levels based on two-tailed tests of differences between research groups: * 10 percent level, ** 5 percent level, *** 1 percent level.

3.2 Impact on Employment and Job Characteristics

This section describes Carreras's impact on overall employment, employment in the healthcare sector, job characteristics such as hourly wages and benefits, and career progress. Overall employment is measured using data from NDNH, while other employment outcomes and job characteristics are measured in the six-year follow-up survey.

- ***Carreras did not have a detectable impact on employment.***

Exhibit 3-3 shows employment by follow-up quarter. Treatment group and control group members had similar and relatively high employment rates through the six-year follow-up period. By quarter 23, about three quarters of each group was employed.

Exhibit 3-3: Employment by Follow-Up Quarter

Source: National Directory of New Hires.

Sample size: treatment group: 391; control group: 384

Note: Statistical significance levels based on two-tailed tests of differences between research groups: * 10 percent level, ** 5 percent level, *** 1 percent level.

- ***Carreras did not have a detectable impact on measures of job quality or career progress.***

Carreras had no detectable impact on full-time employment reported by survey respondents. Only about half of working study participants, regardless of group assignment, reported working full time (Exhibit 3-4).

Exhibit 3-4: Job Characteristics

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact (%)	p-Value
Employment Outcomes						
Working full-time (35+ hours/week) (%)	55.4	54.2	+1.2	4.4	2.3	.389
Working in the healthcare field (%)	31.9	26.2	+5.7*	3.9	21.7	.073
Working in a job at or above \$15/hour (%)	49.2	47.3	+1.9	4.3	3.9	.669
Working in a job at or above \$20/hour (%)	15.8	21.3	-5.4*	3.3	-25.5	.095
Working in a job at or above \$25/hour (%)	9.1	10.4	-1.3	2.5	-12.8	.593
Working in a job offering: (%)						
Health insurance	62.7	57.2	+5.5	4.3	9.5	.203
Paid vacation	61.4	58.0	+3.4	4.3	5.9	.429
Paid holidays	60.9	58.2	+2.7	4.3	4.6	.534
Paid sick days	57.1	51.2	+5.9	4.4	11.5	.181
Retirement or pension benefits (%)	52.4	48.4	+4.0	4.4	8.2	.365
All five benefits (%)	40.4	40.5	-0.1	4.4	-0.3	.513

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error		p-Value
Career Progress					Effect Size	
Perceived career progress (mean for 3-item scale w/values ranging 1-4) ^a	3.13	3.15	-0.02	0.07	-0.02	.794
Access to career network (mean number of affirmative responses for 6 Y/N items)^b	3.23	3.12	+0.11	0.17	0.06	.263
Sample size (all survey respondents)	289	247				

Source: PACE six-year follow-up survey.

Note: Rows in **bold** identify secondary outcomes. Hypothesis tests are one-sided for secondary outcomes and two-sided for other (exploratory) outcomes. Statistics under Relative Impact represent the impact as percentage of the control group mean (i.e., 100 * [impact / control group mean]). Effect sizes represent the impact as a percentage of the control group standard deviation.

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

^a 3-item scale-based agreement with the following: I am making progress towards my long-range educational goals; I am making progress towards my long-range employment goals; and I see myself on a career path.

^b 6-item scale tallying number of statements respondent answered "true": Say you needed advice or help in taking a next step on a career pathway of interest to you. Is there anyone you'd be comfortable turning to: Who has a college degree? Who is currently going to college? Who works at a local college, either as a teacher or staff member providing help to applicants or students? Who works for a local community organization helping people find education and training, work, and related supports? Who works in an occupation of interest to you? Who has a management job in a work setting matching to your career interests?

Significantly fewer treatment group members reported earning at least \$20 per hour. The program had no impact on working in a job that offered all five benefits included on the survey or on access to career networks.

Employed treatment and control group members reported earning almost identical average hourly wages (\$17.34 and \$17.00, respectively) and median hourly wages (\$16.03 and \$16.00, respectively) (not shown).

- ***Carreras had an impact on working in the healthcare field, among the full sample and among those who are employed.***

Thirty-two (32) percent of treatment group members reported employment in the healthcare field, compared to 26 percent of control group members. This is a significant difference of 6 percentage points (see Exhibit 3-3 above). The three-year survey included a similar question about working in a healthcare occupation. At that time, 25 percent of treatment group members responded that they did work in such an occupation, a proportion not significantly different from the control group (19 percent). Thus, the proportion employed in a healthcare field increased and became statistically significant, but still represented a minority of treatment group members.

Exhibit 3-5 provides additional detail about employment in the healthcare sector for those employed at the time of the survey.²⁷ As shown, Carreras did not have a detectable impact on employment in two healthcare sectors: "healthcare practitioner and technical occupations" and "healthcare support occupations." Carreras did have an impact on specific occupations within

²⁷ Respondents who reported employment at the time of the survey were asked to describe the typical activities and duties of their current job. This information was converted into an occupational sector classification. See Appendix Exhibit B-1 for more details.

these sectors that the program targets. It significantly increased by 3 percentage points employment as LPN or Licensed Vocational Nurse and by 10 percentage points employment as Nursing Assistant, Orderly, or Psychiatric Aide.

However, five times as many participants worked in the lower-paid Nursing Assistant occupation than in the higher-paid LPN one. This aligns with credential receipt reported in Chapter 2. It also likely helps explain why the study detected no program impacts on earnings. The mean hourly wage in May 2020 for LPNs in the Chicago area (\$28.45), was more than 80 percent higher than the mean hourly wage for CNAs (\$15.55).²⁸ Additionally, the mean hourly wages for CNAs in the Chicago area are only slightly higher than wages that could be earned outside of the healthcare field, such as in food preparation and serving (\$13.30 per hour).

Treatment group members not employed in healthcare reported occupations in a variety of other sectors, including office and administrative support (15 percent).

Exhibit 3-5: Current Occupational Sector of Employed Study Participants

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	p-Value
Occupational Sector						
<i>Information technology</i>	0.4	2.3	-1.9	1.2	-83.1	.104
<i>Business and financial</i>	9.8	15.4	-5.6	3.5	-36.4	.108
<i>Office and administrative support</i>	15.2	14.7	+0.6	3.7	3.9	.876
<i>Retail and other sales</i>	7.7	8.1	-0.4	2.8	-4.7	.890
<i>Food preparation and serving</i>	1.9	2.0	-0.1	1.4	-4.4	.949
<i>Transportation and material moving</i>	5.6	3.6	+2.1	2.0	57.9	.307
<i>Protective services</i>	1.5	0.5	+1.0	0.7	184.1	.185
<i>Personal care and services</i>	3.5	3.4	+0.2	1.8	4.5	.934
<i>Healthcare</i>	40.8	34.7	+6.1	4.8	17.5	.206
<i>Healthcare practitioners and technical occupations</i>	12.0	8.6	+3.4	2.8	39.8	.231
<i>Licensed Practical Nurse, Licensed Vocational Nurse</i>	3.5	0.7	+2.8**	1.4	402.4	.044
<i>Healthcare support occupations</i>	28.8	26.2	+2.7	4.6	10.2	.563
<i>Nursing Assistant, Orderly, Psychiatric Aide</i>	17.7	7.6	+10.2***	3.4	134.1	.003
<i>Other</i>	13.5	15.4	-1.9	3.6	-12.3	.595
Sample size (employed at follow-up)	227	185				

Source: PACE six-year follow-up survey.

Notes: All hypothesis tests and associated p-values in this table are based on two-sided tests. All statistics are conditioned on employment and thus not purely experimental, thus they are not regression-adjusted. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., $100 * [\text{impact} / \text{control group mean}]$). Occupational estimates are conditioned on reporting a current occupation at the time of the survey and thus are not purely experimental.

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level

²⁸ May 2020 mean hourly wages for Chicago-Naperville-Elgin MSA. Mean annual wages for LPN or Licensed Vocational Nurse was \$59,179. Mean annual wages for Nursing Assistance was \$32,330. https://www.bls.gov/oes/current/oes_16980.htm#31-0000

In summary, Carreras did not have a detectable impact on average quarterly earnings in quarters 23 and 24, the confirmatory outcome. The program did have a 6 percentage point impact on earnings of \$6,825 or more in quarters 23 and 24 (49 percent of the treatment group versus 43 percent of the control group); however, analyses found that the impact was limited to quarter 24 and did not extend to quarter 25. Treatment and control group members earned similar mean and median hourly wages. Significantly more treatment group members worked in the healthcare field (32 percent versus 26 percent).

The next chapter explores whether impacts on education, employment, and earnings affected individual and family well-being.

4. Impacts in Other Domains

This chapter presents Carreras's impact on outcomes in additional domains measured in the follow-up survey: financial well-being; other measures of well-being, family structure and childbearing; and parenting and child development. The career pathways theory of change suggests that Carreras could affect the well-being of program participants and their families through effects on education, employment, and earnings (Fein, Judkins, and Buron 2021).

As noted in Chapter 3, Carreras had no detectable impacts on employment and earnings. Thus, impacts on financial well-being are unlikely. Carreras's impact on credential receipt might directly—that is, not through earnings—affect other measures of well-being, however, such as family structure, and parenting and child outcomes.

4.1 Impact on Financial Well-Being

This section describes impacts on financial well-being.

- ***Carreras did not have a detectable impact on any measure of financial-well-being.***

The program had no detectable impact on financial resilience (i.e., ability to handle an emergency of \$400 or more with cash on hand), financial distress, or debt. Similar proportions of treatment group and control group members received means-tested public benefits in the month prior to the survey (Exhibit 4-1).

Exhibit 4-1: Impacts on Measures of Financial Well-Being

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	p-Value
Financial Resilience						
Able to handle a financial emergency of \$400 from savings or checking (%)	30.9	40.3	-9.5	4.1	-23.5	.989
Other Indicators of Need						
Extent of financial distress (mean for 9-item Y/N scale)	0.87	0.97	-0.10	0.14	-10.6	.231
Other Sources of Household Support						
Received means-tested public benefits last month (%)	58.6	59.6	-1.0	4.3	-1.6	.410
Debt						
Total debt (\$)	8,518	8,608	-90	1,551	-1.0	0.477
Sample size (all survey respondents)	289	247				

Source: PACE six-year follow-up survey.

Note: Rows in **bold** identify secondary outcomes. Hypothesis tests are one-sided for secondary outcomes and two-sided for other (exploratory) outcomes. Statistics under Relative Impact represent the impact as percentage of the control group mean (i.e., 100 * [impact / control group mean]). Effect sizes represent the impact as a percentage of the control group standard deviation.

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

4.2 Impact on Family Structure and Parenting

This section describes Carreras's impacts on measures of family structure. For parents, it reports their assessment of the educational prospects of the "focal child" and their engagement as a parent.²⁹

- ***Carreras did not affect the percentage of study participants living with a spouse or a partner.***

Treatment and control group members were equally likely to live with a spouse or partner at the time of the six-year survey. However, treatment group members were 12 percentage points less likely than control group members to live with a spouse, and 7 percentage points more likely to live with a partner (i.e., cohabitating) (Exhibit 4-2). The program had no detectable impact on family structure or childbearing since random assignment.

Exhibit 4-2: Impact on Family Structure and Childbearing

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	p-Value
Living with: (%)						
Parents	27.1	24.2	+2.9	3.9	12.0	.457
Spouse	43.1	55.5	-12.4***	4.3	-22.3	.004
Partner	16.0	9.1	+6.8**	2.9	74.4	.017
Spouse or partner	59.1	64.6	-5.5	4.3	-8.6	.195
Own/partner's child	65.0	66.8	-1.8	4.1	-2.6	.665
Family structure: (%)						
Living with spouse/partner and:						
Own/partner's child	44.5	49.9	-5.5	4.4	-10.9	.211
No child	14.6	14.7	-0.1	3.1	-0.5	.980
Not living with spouse/partner and:						
Own child	20.6	16.8	+3.7	3.4	22.0	.280
No child	20.4	18.5	+1.8	3.4	9.9	.593
Had/partner had birth since random assignment or is currently pregnant (%)	33.5	28.9	+4.6	4.0	15.8	.255
Sample size (all survey respondents)	289	247				

Source: PACE six-year follow-up survey.

Note: All hypothesis tests and associated p-p-values in this table are based on two-sided tests. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., $100 * [\text{impact} / \text{control group mean}]$).

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

- ***Carreras had little impact on parenting.***

Exhibit 4-3 shows Carreras's impact on parents' beliefs and engagement. Treatment group parents perceived significantly *more* school-performance-related risks (academic, attendance, and behavioral) for their focal child than did parents in the control group, although the

²⁹ The focal child is a randomly sampled child in the household. This approach was used to reduce respondent burden. Probabilities of selection varied by age, designed to minimize differences in sample sizes for the three child age domains in the three-year questionnaire. The team used the same focal child sample for the six-year survey.

perceived risk level was low for both groups. This impact could suggest that treatment group parents were better informed about their children's performance and potential risks. It could also suggest that treatment group parents perceived these risks to be higher because they experienced the challenges of formal education and training on their own.

Exhibit 4-3: Impact on Parenting and Children

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error		p-Value
Children				Effect Size		
Number of school-performance-related risks perceived by parent for focal child ^a (mean)	0.6	0.4	+0.2***	0.1	0.33	.009
Parenting				Relative Impact (%)		
Parent believes focal child will graduate college (%)	91.2	82.1	+9.1	7.2	11.0	.210
Parent almost always present for meals and other daily family activities (%)	21.3	18.4	+2.9	5.2	15.7	.579
Sample size (all survey respondents)	138	117				

Source: PACE six-year follow-up survey.

^a Number of school-performance-related risks (academic risk, attendance risk, and behavior risk), ranging from 0 to 3.

Note: All hypothesis tests and associated p-values in this table are based on two-sided tests. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., 100 * [impact / control group mean]).

Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

Carreras had no impact on parents' engagement and their beliefs about their focal child's college graduation chances. Similar proportions of treatment group parents and control group parents believed their children would graduate college. About one-fifth of each group report they are always present for meals and other daily family activities.

In summary, Carreras had no detectable impact on measures of financial well-being. While the program had no impact on living with a spouse or partner, significantly more treatment group members cohabited and significantly fewer lived with a spouse.

5. Conclusion

Carreras en Salud aims to help Latino adults with low income prepare for, enroll in, and complete occupational training to earn CNA and LPN credentials and ultimately find well-paid healthcare jobs. Section 5.1 summarizes the six-year findings by domain. Section 5.2 discusses the findings. Section 5.3 raises implications of the findings for programs. Section 5.4 concludes with open questions.

5.1 Summary

Six years after study enrollment, Carreras had an impact on some measures of educational attainment and very limited impacts on employment and earnings.

In the education domain, Carreras had a significant positive impact of 4 percentage points on the confirmatory outcome, *receipt of a college credential after eight or more months of FTE college enrollment by the 24th follow-up quarter*. The program also had significant, positive impacts on two exploratory outcomes: *receipt of a college credential after Year 3* (5 percentage points) and *any college enrollment after Year 3* (7 percentage points). The six-year follow-up survey provided additional detail about credentials earned, including Carreras's target credentials. The program had an impact on receipt of a healthcare credential from any source (15 percentage points), as well as an LPN credential (3 percentage points) and CNA credential (6 percentage points).

In the employment domain, Carreras had no detectable impact on average quarterly earnings in follow-up quarters 23 and 24, the confirmatory outcome. The program had an impact on one of the two secondary earnings outcomes: Carreras increased the fraction of study participants with earnings of \$6,825 or more in follow-up quarters 23 and 24 by 6 percentage points. However, additional analyses found no impact in quarter 25. Considering the lack of other detectable impacts, this finding is likely due to chance. It did not increase average quarterly earnings in follow-up Years 4-6. Significantly more treatment group members reported working in the healthcare field than did control group members (6 percentage point impact), although a minority of both groups worked in this field. Carreras had no detectable impact on employment in a *job that offered five types of benefits* or access to a career network.

In terms of outcomes in other domains, Carreras had no detectable impact on any measure of financial well-being. While the program had no impact on living with a spouse or partner, significantly more treatment group members cohabited and significantly fewer lived with a spouse. Finally, the program had little impact on parenting.

5.2 Discussion of Findings

What accounts for the lack of earnings impacts? This section discusses several possibilities.

- **Carreras only had a small impact on receipt of a higher-level college credential.**

Carreras increased the receipt of a college credential associated with eight or more months of FTE enrollment – a proxy for LPN credential receipt – by 4 percentage points. The LPN

credential is critical to earnings gains. On average, a full-time LPN in the Chicago area earns about twice as much as a full-time CNA, and a full-time CNA earns only slightly more than workers in entry-level jobs that do not require postsecondary education (see Chapter 3). Although the program increased receipt of a higher-level credential, the difference does not appear to have been enough to affect quarterly earnings.

- **Carreras had no detectable impact on full-time employment.**

Another possible explanation for the lack of detectable earnings impact is that the program did not appear to have an impact on full-time employment. At the time of the follow-up survey, only about half of each group worked 35 or more hours per week. The average hourly wages were similar for both groups (approximately \$17). An increase in hours worked by the treatment group relative to the control group, could produce an earnings impact.

The data collected for this study do not explain why employed study participants did not work full-time. However, 2018 Bureau of Labor Statistics estimates of Current Population Survey data not specific to the Chicago area indicate reasons for part-time work include both economic ones (primarily the inability to find full-time work) and non-economic ones (including childcare issues, other family and/or personal obligations, health and/or medical limitations; and attending school or a training program).³⁰

- **Although a large share of participants returns for subsequent pathway steps, most did not reach the highest step.**

Related to the first point, many participants who complete steps, including the CNA credential, do not return for a follow-on training to progress towards an LPN program. The three-year report noted 44 percent of treatment group members participated in two steps, but only 15 percent in three. Participants who enroll in a third step generally enter the Pre-LPN step or higher.

That participants' second step was often to another lower bridge step, or the CNA step is due, in part, to where participants started on the pathway (i.e., the next pathway step was either another lower bridge one or the CNA). It also could reflect that participants enrolled in the Instituto-based lower bridge steps have access to two advisors who could potentially help them address barriers to persistence (non-academic advisor), provide tutoring to help complete the step and help navigate enrollment in the subsequent step (academic advisor). Once participants leave the Instituto-based steps, their interaction with Carreras staff greatly diminishes to periodic contact with an academic advisor who travels to college campuses. Participants in the CNA, LPN prerequisites, and LPN steps do not receive non-academic advising, including referrals to resources that could help them persist in their programs. If participants need tutoring, academic advisors will direct them to resources on the campus. When a participant completes a step and leaves Instituto or the college to work or for another

³⁰ U.S. Department of Labor Bureau of Labor Statistics (2018).
<https://www.bls.gov/opub/mlr/2018/article/pdf/who-chooses-part-time-work-and-why.pdf>

reason, contact with all Carreras staff ends. Participants who want to enroll in a subsequent step would need to be proactive and seek assistance.

The launch of Instituto College could help address some of these challenges. The College includes a CNA course as well as a new pathway step: Associate Degree of Nursing (ADN). Instituto staff describe the College as a “non-traditional school serving predominantly non-traditional students, including but not limited to immigrants, working mothers and older generation students.” The ADN course load and class schedule aim to fit the needs of the students, for example by utilizing summer semesters to distribute the program course load more evenly throughout the year. Additionally, students receive wraparound support services “specifically geared to their culture, family needs, and individual aspirations.”³¹ However, at this time the college does not offer an LPN program, so Carreras participants seeking this credential will continue to enroll in Chicago City College courses.

5.3 Implications for Programs

Given these six-year impact findings, how could Carreras, or other multi-step programs, support completion of healthcare training and movement into more advanced, higher-paying jobs? This section describes implications of the findings.

- **Participants might benefit from additional in-program and post-program advising.**

As noted above, participants leave Instituto-based steps to attend a City College for CNA training, LPN Prerequisites, or LPN training. At that point, participant contact with program staff (and the non-academic advising those staff provide) declines sharply. Periodic meetings with Carreras academic advisors might be sufficient to address financial aid questions or arrange tutoring, and participants can contact their academic advisors more frequently if needed. But academic advisors do not address non-academic issues that might make it difficult to persist in programs, such as childcare and guidance on how to balance work and school.

Adding a non-academic advising component might help participants persist in their step(s). Evaluations of interventions that include intensive in-program advising find impacts on outcomes such as college completion. For example, the Accelerated Study in Associate Programs (ASAP), implemented at the City University of New York and three Ohio community colleges, provides comprehensive advising from a dedicated advisor with a small caseload, career information from employment services staff, and tutoring services. An evaluation found impacts on degree receipt three years post random assignment (18 percentage points) continued through six years (10 percentage points) (Miller and Weiss 2021).

Additionally, post-completion advising might encourage working participants to return for additional training. For example, the four programs in Work Advance implemented post-employment retention and advancement services, including coaching to address complicating life challenges that arise and help identify next step job opportunities and/or skills training to help workers move up the career ladder, in addition to occupational skills training, career

³¹ <https://www.institutochicago.org/>

readiness services, and job placement. An evaluation of Work Advance found two-year impacts on all three measures of employment and earnings for three of the four programs³² (Hendra et al. 2016), six-year impacts on total earnings for one program (Per Scholas), and six-year impacts on earnings of \$30,000 or greater for three programs (Schaberg and Greenberg 2020).³³

The launch of Instituto College, located in the Pilsen neighborhood where Carreras provides its lower bridge courses and most participants reside, could potentially facilitate more regular communication with students while they are in training and after they leave. Because Carreras academic and non-academic advisors are in the vicinity, they would not have to travel far to meet regularly with Instituto College participants to provide supports. Participants could more easily access their advisors, as well as employment services and other resources at Instituto. Although it currently includes only CNA and ADN programs, staff expect the College to offer the LPN program in the future.

Carreras staff might also explore strategies for remaining in contact with students after they leave college for work. Currently, program participants must reach out to Instituto staff if they want or need assistance. For example, Carreras could explore implementing periodic outreach to CNA completers to learn whether they are working in the healthcare field, and if so, remind them of the benefits of continuing their training and discuss how to do so. If they are not working in healthcare occupations, Carreras staff might gather useful data as to why they are not, and whether aspects of the program could be modified to address any shortcomings.

- **More program participants might reach and complete the LPN step if the program supported full-time college attendance.**

Carreras participants who reach the LPN level generally do so slowly. An earlier study of the Carreras steps (Helmer and Blair 2011) found that participants who began at the Pre-LPN step and CNA steps took a median 43 months and 46 months, respectively to complete the LPN step.

The evaluation cannot determine the reason why less than 20 percent of participants earn a higher-level credential, but many factors likely contribute. As noted above, although many participants continue to a second step, slightly more than half of participants leave Carreras for the workforce or other reasons (e.g., family commitments) after completing their initial step. Post-program contact by Carreras staff might help reengage some. Another factor is the part-time status of participants who do continue to an upper bridge; in the first three years, full-time college enrollment never exceeded 8 percent of the treatment or control group. Students can complete LPN Prerequisites in two semesters if they attend college full-time; however, because

³² The three measures were: employment in the targeted sector, job offered advancement opportunities, earnings from any job in Year 2. The fourth program had an impact on employment in the targeted sector only.

³³ Of the four programs, only Per Scholas had two- and six-year impacts on total earnings and an impact on earnings greater than \$30,000 at six years. Per Scholas is a 15-week Information Technology program.

most Carreras participants attend part-time, it can take two or more years to complete them. Moreover, not only does part-time status lengthen the timeline for earning a credential, it also is associated with higher drop-out rates relative to full-time status.³⁴

Some workforce development programs that had large positive impacts on education and earnings require full-time attendance and provide complementary supports to increase persistence and completion of training. The rationale for the full-time requirement is that participants are more likely to complete their training before personal or other challenges overwhelm them and they drop out. Depending on the program, supports include tuition assistance, mandatory advising, and support for childcare and transportation costs. Less commonly, programs provide stipends or other non-tuition assistance.

For example, Per Scholas requires full-time attendance for its 15-week Information Technology training program (Hendra et al. 2016). Valley Initiative for Development and Advancement (VIDA) in the Lower Rio Grande Valley area of Texas, and its parent program, Project Quest in San Antonio, require full time attendance and weekly mandatory group or individual case management and counseling sessions to provide information on how to succeed in college and employment, identify problems early, and provide social support. Wraparound support services include funding for tuition, books, and other needs, such as transportation and childcare, to facilitate school attendance (Rolston et al. 2017; Elliott and Roder 2017). Year Up, a sectoral training program for economically disadvantaged urban young adults in eight cities, provides six months of full-time training in the information technology and financial service sectors followed by six-month internships at major firms. Year Up's program, which is full-time, provides extensive supports—including weekly stipends (Fein and Hamadyk 2018). Given the array of supports, programs like VIDA, Project QUEST, and Year Up are more expensive per participant than most training programs (Rolston et al. 2021; Elliott and Roder 2017; Fein et al. 2021).

Per Scholas, Project QUEST and Year Up screen applicants carefully to assess, among other things, their ability to attend full-time. Additionally, applicants must be college ready (Project QUEST) or have a high school diploma or equivalent (Year Up), and thus differ from the Carreras target population in many ways. However, the subset of Carreras participants who reach the Pre-LPN level and have thus demonstrated basic skills competencies equivalent to 12th grade, could greatly shorten the time to reach the LPN step on the pathway if they could commit to full-time training.

Whether Carreras participants can or want to attend full-time is not clear. Instituto staff designed the program to accommodate participants who were working, with lower bridge steps classes scheduled at night. Combined with the part-time college attendance among upper

³⁴ The Community College Research Center reports that the one-year retention rate among students who started college in Fall 2018 at a public two-year college was 51 percent for part-time students, compared to 70 percent for full-time students. <https://nscresearchcenter.org/persistence-retention/>. The National Center for Education Statistics reports that the part-time retention rate in postsecondary institutions was 46.5 percent in fall 2019. <https://nces.ed.gov/ipeds/TrendGenerator/app/answer/7/33>

bridge participants, a full-time program might not be a viable option for Carreras's target population.

- **Carreras and similar programs could consider expanding to a wider range of healthcare occupations, including some that do not involve direct patient care.**

Carreras staff recognize that a CNA credential is an appropriate initial step for their participants with lower basic skills levels. However, an LPN credential might not be a good fit for some participants for a variety of reasons, including: lack the time to continue their education, no interest in direct patient care, and the reading and English speaking skill level needed to enter the program is difficult to attain for English language learners. National Bureau of Labor Statistics suggest that other healthcare-related credentials have higher median wages than the CNA. These include Medical Assistants, Emergency Medical Technician, and other technician positions (e.g., ultrasound, radiology). Programs could also consider training for occupations not specific to patient care, including medical office (e.g., Records Clerk, Records Technician) or Pharmacy Technician. Relative to LPNs, these programs are shorter and/or require lower skill levels.³⁵

5.4 Open Questions

Six years after random assignment, Carreras en Salud increased credential attainment but not average quarterly earnings. The primary question is: Will earnings impacts emerge? To produce earnings impacts, Carreras's impact on longer-term credentials must grow. However, the program's impact on the LPN proxy measure held steady at around 4 percentage points during the final six quarters of the follow-up period, suggesting the impact will not grow considerably in the future. That Carreras had no detectable impact on college enrollment after Year 3 also suggests the treatment group "pipeline" of LPNs is no larger than the control group "pipeline". Instituto College, once it implements an LPN program, could facilitate enrollment in and completion of the LPN course. However, the timeline for adding the course is not clear. Thus, earnings impacts in the coming years are unlikely given the current structure of the program and the six-year outcomes. A planned Career Pathways Extended Outcomes Impact Study, however, would assess future credential and earnings impacts.³⁶

More broadly, for future cohorts and workforce training programs generally, the primary question is whether potential adaptations to the program model could positively affect both educational attainment and earnings. For example, would adding nonacademic advising for upper bridge participants help them persist and complete their courses, thus setting them up

³⁵ Examples of other (non-CNA) "healthcare support occupations" median hourly wages in the Chicago area include Phlebotomist (\$18), Medical Assistant (\$18), Medical Equipment Processor (\$20), and Dental Assistant (\$20). Examples of other (non-LPN) "healthcare practitioners and technical occupation" median hourly wages in the Chicago area include Medical Record Specialist (\$23), Health Information Technologist (\$23), and Surgical Technician (\$25). In contrast, the median hourly wage of a CNA is \$14.95. The median hourly wage of an LPN is \$27.84. https://www.bls.gov/oes/current/oes_16980.htm#31-0000

³⁶ OPRE is planning a 10-year follow-up study based on administrative data (NDNH and NSC). As of this writing, the study is not yet funded.

for the next pathway step? Would supports to attend college full-time help participants complete LPN prerequisites and the LPN course more quickly? Would expanding the types of healthcare training options that result in a credential beyond CNA and LPN allow substantially more participants to earn credentials associated with higher-paying jobs? “Next generation” tests of these adaptations could focus on implementation as well as impacts on credentials, earnings, and movement to subsequent pathway steps.

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Supplemental Exhibit

Exhibit S-1: Carreras Impacts on Earnings Preceding and During COVID-19 Pandemic

Calendar Quarter	Estimated Impact	Standard Error	p-Value
2018 Quarter 1	-\$109	\$330	.742
2018 Quarter 2	\$27	\$355	.940
2018 Quarter 3	-\$79	\$342	.818
2018 Quarter 4	\$36	\$367	.921
2019 Quarter 1	\$274	\$356	.442
2019 Quarter 2	\$231	\$361	.522
2019 Quarter 3	\$399	\$375	.288
2019 Quarter 4	\$241	\$390	.536
2020 Quarter 1	\$65	\$401	.872
March 2020: World Health Organization declares COVID-19 a pandemic, the President of the United States declares COVID-19 a National Emergency			
2020 Quarter 2	\$461	\$439	.294
2020 Quarter 3	\$225	\$414	.587
2020 Quarter 4	-\$59	\$475	.901

Source: National Directory of New Hires.

Sample size: 775.

Note: All hypothesis tests and associated *p*-values in this table are based on two-sided tests.

As discussed in Section 1.3, random assignment began in November 2011 and continued until September 2014. Thus, the calendar quarters in this table represent different follow-up quarters, depending on when participants were randomly assigned. For the earliest enrollees (those enrolled in quarter 4 of 2011), the exhibit represents quarters 25 to 36 since random assignment. For the latest enrollees (those enrolled in the third quarter of 2014), the exhibit represents quarters 14 to 25 since random assignment.